

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF DELAWARE

IN THE MATTER OF THE APPLICATION OF)
DELMARVA POWER & LIGHT COMPANY FOR)
APPROVAL OF A PROGRAM FOR PLUG IN) PSC DOCKET NO. 17-1094
VEHICLE CHARGING)
(Filed October 19, 2017))

FINDINGS AND RECOMMENDATIONS OF THE HEARING EXAMINER

DATED April 11, 2019

Mark Lawrence
Senior Hearing Examiner

Table of Contents

| | | |
|------|--|----|
| I. | APPEARANCES | 1 |
| II. | BACKGROUND | 2 |
| | A. Procedural Background | |
| | B. Public Comments | |
| | 1. University of Delaware's Research & Development Group | |
| | 2. Delaware Department of Transportation | |
| | 3. Delaware State University | |
| | 4. General Motors | |
| | 5. Edison Electric Institute | |
| | 6. GridWise Alliance | |
| | 7. Greenlot | |
| | 8. ChargePoint | |
| | 9. Reach Riverside | |
| | 10. Clean Air Council | |
| | 11. Caesar Rodney Institute | |
| | 12. Member of the Public | |
| III. | SUMMARY OF EVIDENCE | 29 |
| | A. COMPANY'S PRE-FILED DIRECT TESTIMONY | |
| | B. DPA'S PRE-FILED DIRECT TESTIMONY | |
| | C. STAFF'S PRE-FILED DIRECT TESTIMONY | |
| | D. DNREC'S PRE-FILED DIRECT TESTIMONY | |
| | E. SIERRA CLUB'S PRE-FILED DIRECT TESTIMONY | |
| | F. COMPANY'S PRE-FILED REBUTTAL TESTIMONY | |
| IV. | EVIDENTIARY HEARING | 60 |
| V. | FINDINGS AND RECOMMENDATIONS | 60 |

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Mark Lawrence, duly appointed Hearing Examiner in this Docket pursuant to 26 Del. C. §502 and 29 Del. C. ch. 101 and by Commission Order No. 9183 dated February 1, 2018, reports to the Commission as follows:

I. APPEARANCES

On behalf of the Applicant Delmarva Power and Light Company ("Delmarva", "DPL" or "the Company"):

By: LINDSAY B. ORR, ESQ.
Assistant General Counsel
Delmarva Power & Light Company

DRINKER BIDDLE & REATH LLP
THOMAS P. MCGONIGLE, ESQ.

On behalf of the Public Service Commission Staff ("Staff" or "Commission Staff"):

By: THOMAS D. WALSH, ESQ.
DEPUTY ATTORNEY GENERAL

On behalf of the Division of the Public Advocate ("DPA" or "Public Advocate"):

By: REGINA A. IORII, ESQ.
DEPUTY ATTORNEY GENERAL

On behalf of the Delaware Department of Natural Resources & Environmental Control ("DNREC"):

By: RALPH DURSTEIN III, ESQ.
JAMESON TWEEDIE, ESQ.
DEPUTY ATTORNEYS GENERAL

On behalf of the Caesar Rodney Institute ("CRI"):

By: DAVID T. STEVENSON, POLICY DIRECTOR

On behalf of the Sierra Club:

By:

KENNETH T. KRISTL, ESQ.
PROFESSOR OF LAW, DIRECTOR, ENVIRONMENTAL & NATURAL
RESOURCES LAW CLINIC, WIDENER UNIVERSITY DELAWARE LAW
SCHOOL

JOSHUA BERMAN, ESQ.
SENIOR ATTORNEY, SIERRA CLUB ENVIRONMENTAL LAW PROGRAM

II. Background

A. Procedural Background

1. On October 19, 2017, Delmarva Power & Light Company ("Delmarva," "DPL" or the "Company") filed an Application ("the Application")¹ with the Commission requesting approval of a Voluntary Program for Plug-in Electric Vehicle Charging ("PIV").² (Exh. 1) On February 9, 2018, Delmarva amended its Application. (Exh. 3) In the Amended Application and supporting testimony, Delmarva is proposing to implement a voluntary PIV Program, consisting of seven (7) separate offerings for PIV charging in Delaware which are described below:

- a. **Residential** - with Existing Electric Vehicle Supply Equipment, providing discounted whole House Time of Use rate encouraging charging during off-peak hours i.e. peak hours are between 12 Noon and 8 p.m., Monday through Friday;³

¹ Exhibits from the evidentiary hearing will be cited herein as "Exh. ___ - witness name, pg. #." Schedules from the parties' Exhibits entered into the evidentiary record will be cited as "Exh. ___-witness name, Sch. #." References to pages from the transcript from the evidentiary hearing will be cited as "Tr. - ___ pg. #."

² According to the Amended Application, "[f]or purposes of this Application, a PIV is defined as a vehicle registered in the State of Delaware (except where otherwise noted) that can be plugged into an electric source to charge the battery pack and, once fully charged, can travel at least thirty (30) miles using electricity as its primary fuel source." (Exh. 3, p.1, fn. 1) "Electric hybrid vehicles" are different than PIV vehicles because the former uses a gasoline engine to charge the battery while driving. (Exh. 9, p.6)

³ This is the only one of the first four (4) offerings which does not allow

- b. **Residential** - with Existing Electric Vehicle Supply Equipment, providing a FleetCarma® device option to fifty (50) qualified customers which, if installed in the vehicle, tracks data on usage, location, time and amount of charge; customers installing same will receive a one-time installation credit of \$50, a \$5 credit for each month the unit is plugged in and active and an additional credit for off-peak charging at their residence;
- c. **Residential** - without Existing Electric Vehicle Supply Equipment - the Company will be providing Smart Level 2 Equipment to provide a time of use rate and for customers whose PIVs have a range of 30 miles or greater, the Company will install a Smart Level 2 equipment at fifty (50) customers' homes at 50% of the cost and will also install a second AMI meter to measure the energy of the PIV directly; Level 2 stations are 240-volt, AC power mounted on a wall or a pedestal, and take 3-5 hours to charge a fully depleted battery;
- d. **Multi-Family Dwelling Units**
(condominium/apartment buildings) with dedicated on-site parking currently without Existing Electric Vehicle Supply Equipment; the Company will provide ten (10) Level 2 stations at 50% of the cost of the station upon request for qualified buildings where at least three (3) Delaware registered PIV owners reside,⁴ and where the building owner is a DPL account holder, with the account holder paying for installation costs; this offering does not offer discounted whole House Time of Use because multiple residents may need access to the charger and it may be unfair to customers who need to charge during daytime hours;⁵

third-party supplier participation. (Exh. 4, p.15)

⁴ Delmarva later agreed to consider modifying the requirement that at least three Delaware-registered PIV owners reside at a particular multi-family dwelling in order for the building owner to qualify for this offering. (Exh. 12, pp. 5-6.)

⁵ For SOS customers selecting a PIV-specific rate under Offerings 1 or 3, they will also have the option of receiving electricity consisting of 100% renewable energy. (Exh. 3, p.18)

- e. **Public Charging Corridor** - Installation of two (2) Direct Current Fast Chargers ("DCFC") along major roadways in Delmarva's service territory based primarily upon expected use; the Chargers will be Company owned and maintained;
- f. **Public Charging Neighborhood Installation** - up to two (2) Level 2 Charging Stations installed in communities in Delmarva's service area "based upon a maximum opportunity for use and convenience of PIV users within the neighborhood;" the Chargers will be Company owned and maintained; and
- g. **Electric School Buses** - "Delmarva proposes to work with appropriate agencies within the State of Delaware and/or local schools or community centers to develop a [\$370,000] program that will bring the benefits of electric buses ... to school aged children within Delmarva Power's service territory." This proposed school bus offering was the primary change between the Company's original and Amended Applications. (Exh. 3, pp. 14-21; Exh. 4, pp. 15, 20; Exh. 5, pp.3-7; Sch. (PBR)-2, p.5.)

2. The Amended Application sought the following relief from the Commission: a) that the Commission approve the Company's seven (7) proposed Offerings and the corresponding proposed tariffs; and b) that the Commission establish a regulatory asset to defer costs associated with implementing the proposed Program in the amount of \$2,033,050. The total estimated cost of the program proposed in the Amended Application was approximately \$2,238,550. The Company estimated that approximately \$480,000 of the total cost would be recovered from program participants through either direct contributions as part of the cost sharing included in Offerings 3 and 4 or the Company's public charging rate options in Offerings 5 and 6. The remainder would be recovered from the Company's

ratepayers.

3. Moreover, the Company also seeks that: a) the Program's costs categorized as Operations & Maintenance be deferred to a regulatory asset and amortized over a five (5) year period; and b) those costs associated with capital assets be deferred to a regulatory asset and amortized over a fifteen (15) year period, and also be incorporated into rate base and earn a return as part of a base distribution rate proceeding. (Amend App, Exh. 3, p.23; Blazunas, Exh. 5, pp.7-9.)

4. On October 24, 2017, the Public Advocate intervened in this Docket pursuant to its statutory right according to 29 Del. C. §8716.

5. On December 8, 2017, by Order No. 9156, Caesar Rodney Institute's ("CRI's") Amended Petition for Intervention was granted without objection from any party.

6. On December 8, 2017, by Order No. 9157, Sierra Club's Petition for Intervention was granted without objection from any party.

7. On January 16, 2018, by Order No. 9164, the Delaware Department of Natural Resources and Environmental Control's ("DNREC's") Petition for Intervention was granted without objection from any party.

8. As required by the Commission, the Company published public notice of the Application and the Public Comment Sessions in the Cape Gazette newspaper on December 15, 2017, in the News Journal on December 19, 2017, and in the Delaware State News on December 20, 2017. The original Agreed Procedural Schedule was established on January 2, 2018, setting the Evidentiary Hearing for July 11-12, 2018.

9. Three (3) Public Comment Sessions were held in each of Delaware's three (3) counties: a) January 16, 2018 at the Gilliam

Building in New Castle; b) January 17, 2018 at the Public Service Commission Hearing Room in Dover; and c) on January 18, 2018 at the Indian River Senior Center in Millsboro.

10. On February 1, 2018, by PSC Order No. 9183, the Commission designated me the Hearing Examiner in this Docket replacing Hearing Examiner R. Campbell Hay who had resigned his position. I was assigned to "to continue the assigned responsibilities in this Docket [as described previously in PSC Order No. 9150 (Nov. 30, 2017)], as may be necessary, [and] to have a full and complete record concerning the justness and reasonableness of the proposed program." (Id. at §1.) In addition to determining the form of any future public notice, I was required to "file with the Commission my proposed Findings and Recommendations." (Id.)

11. On February 9, 2018, the Company filed the pre-filed direct testimony of: a) Robert S. Stewart, Pepco Holdings, Inc.'s ("Pepco's") Manager of Smart Grid and Technology; and b) Peter R. Blazunas, a Senior Rate Analyst in Pepco's Regulatory Strategy and Revenue Policy Division.⁶ (Exhs. 4 and 5, *respectively*.)

12. On May 17, 2018, Staff filed the pre-filed direct testimony of Public Utility Analyst Amy J. Porter who has since resigned her position. (Exh. 7)

13. On May 17, 2018, the Sierra Club filed the pre-filed direct testimony of Consultant Douglas B. Jester. (Exh. 6)

14. On May 17, 2018, DNREC filed the pre-filed direct testimony of Planner Kathleen Harris, on behalf of DNREC's Division of Energy, Climate and Coastal Programs. (Exh. 8)

⁶ Delmarva is a wholly-owned subsidiary of Pepco Holdings, Inc. ("Pepco") which is a wholly-owned subsidiary of Exelon Corporation ("Exelon").

15. On May 18, 2018, the Public Advocate filed the pre-filed direct testimony of Consultant Glenn A. Watkins and Public Advocate Andrew C. Slater. (Exhs. 9 and 10, *respectively.*)

16. On August 22, 2018, I issued an Agreed Amended Procedural Schedule setting the discovery and testimony scheduling, and setting the evidentiary hearing dates of December 18 and 19, 2018.

17. On September 7, 2018, Delmarva filed the Rebuttal Testimony of Robert S. Stewart and Peter R. Blazunas. (Exhs. 12 & 11, *respectively.*)

18. On October 16, 2018, I denied an untimely Petition to Intervene filed by the University of Delaware's Electric Vehicle Research & Development Group.

19. On December 4, 2018, I held a Pre-Evidentiary Hearing Conference Call with all parties.

20. On December 18, 2018, pursuant to the parties' request, I continued the Evidentiary Hearing due to their settlement negotiations. During the afternoon of December 18, the parties informed me that they would not know whether they would be able to secure a final written settlement agreement in time to hold the evidentiary hearing on December 19. Consequently, I granted the parties' request to postpone the December 19th hearing.

21. On January 25, 2019, the parties filed a Settlement Agreement executed by Delmarva Power, Staff and the Public Advocate. Thereafter, the parties agreed that the Evidentiary Hearing would occur at the Commission's office in Dover on February 28, 2019. The Company published the Public Notice of Evidentiary Hearing Concerning Proposed Settlement in the News Journal and in the Delaware State News on February 7, 2019, and in the Cape Gazette on February 8, 2019.

22. At the Evidentiary Hearing, four (4) witnesses testified, fifteen (15) exhibits were admitted into evidence, and there are thirty nine (39) pages of hearing transcript. The hearing is described in detail later in Section IV of this Report.

B. Public Comments.⁷

1. UNIVERSITY OF DELAWARE'S RESEARCH AND DEVELOPMENT GROUP'S PUBLIC COMMENT.⁸

23. Ms. Imelda Foley and Ms. Sara Parkison, Energy Policy Analysts from the University of Delaware, Research and Development Group commented, each supporting Delmarva's proposed Electric Vehicle Program at two (2) Public Comment Sessions. (Tr.-33-36, 49-52)

"Electric vehicles are coming. Bloomberg predicts that before 2030, they will be cheaper than gas vehicles and increasingly economical even without subsidies with the results that over 60 percent of car sales in the United States will be electric by 2050.

Numerous states are conducting pilot programs. And ambitious plans, like California's 1.5 million vehicle goal and New York's \$55 million dollars for rebates, encourage automakers to produce more models. GM is proposing many new models, 30 in fact.

If thorough planning is done in advance, we can transition to new patterns of electric usage without causing stress to the grid.

If not, expensive upgrades will be needed. For example, if all electric vehicles start charging at five p.m., additional

⁷ The Public Comments described in this Report are verbatim, however, in the interest of brevity, portions of the Public Comments were not included in this Report.

⁸ The University of Delaware's Research and Development Group attended two (2) of the Public Comment Sessions. Dr. Willett Kempton, Professor of the School of Marine Science and Policy, Professor of the Department of Electrical and Computer Engineering and the Research Director, Center for Carbon-free Power Integration, also joined in along with the Policy Analysts in the October 17, 2017 written comment attached to the Amended Application in favor of the Commission adopting the Company's proposed program. The written comment made a number of recommendations to the Company regarding its program going forward should it be approved by the Commission. (Exh. 3)

distribution capacity will be needed, which will be paid for by the ratepayers.

However, if charging time is spread throughout the night, which is possible with today's technology, most or all upgrade needs and consequent costs can be avoided.

Planning for the growth of EV's depends on our understanding of the habits of their EV owners and their response to incentives such as time-of-use rates.

Delmarva's proposed program will give the company experience with electric vehicles and allow them to experience with incentive and technology to reduce peak load and, therefore, to reduce the need for expensive upgrades.

One way that Delmarva Power's proposed program could be improved would be to include a small number of fleet vehicles as a test.

School buses would be an excellent vehicle for such a test. They have a large load and have regular predictable schedules.

In addition to learning about managing increased load, electrifying school bus fleets can ensure that our children are not breathing diesel fumes on a daily basis, while lowering costs to school districts, benefits that could be amplified through a vehicle to grid design.

There has been public discussion and interest in supporting the electrification of school buses in Delaware.

Delmarva has always expressed an interest in such a test program. Given this interest and the benefits of the system, we recommend adding school bus electrification program to this filing, ideally one that would also allow testing of vehicle to grid systems as part of the program." (Tr. 33-36)

2. DELAWARE DEPARTMENT OF TRANSPORTATION'S PUBLIC COMMENT.

24. The Secretary of Delaware's Department of Transportation, Jennifer Cohan, submitted a Written Comment attached to the Application supporting Delmarva's proposed Electric Vehicle

"The lack of EV charging facilities are consistently identified as one of, if not the primary barrier to widespread EV adoption; we have experienced that first hand here in Delaware. We are attempting to add EV's to our transit fleet and the largest hurdle is the infrastructure. As states including Delaware develop policies to both support the deployment of EV's and grow the market for all participants, electric companies are positioned to play a critical role if permitted by public utility commissions through targeted and strategic investments in EV charging infrastructure that benefit the broader community. Importantly, these investments can complement and accelerate other efforts underway to grow the EV market by third-parties and state governments, including the Delaware Clean Transportation Incentive Program. One key element in enabling beneficial EV growth is the ability to manage charging.

Beyond delivering the "fuel" that powers electric transportation, electric companies can play an integral role in enabling and accelerating electric transportation in their local market, including educating customers and other stakeholders, managing and optimizing vehicle charging, and deploying charging infrastructure up to and including ownership and operation of charging equipment. These investments can unlock value for all customers by: growing the electric vehicle (EV) market for all participants, helping to integrate EV charging into the grid in a cost-effective manner, and driving outcomes that protect customer interests and maximize customer value."

3. DELAWARE STATE UNIVERSITY'S PUBLIC COMMENT.

25. Delaware State University's ("DSU") President Dr. Harry L. Williams also submitted a written comment attached to the Application on October 18, 2017. DSU supports Delmarva's proposal to enhance vehicle electrification in Delaware.

"Thanks to a grant from Delmarva Power, DSU has established the Renewable Energy Education Center (REEC) with the mission to enhance the education and training capacity of the University and to provide the general public with renewable energy literacy and training."

"DSU has campuses in Kent and New Castle counties where we can place Level II or DC Fast chargers for the public and university vehicles. The REEC along with the faculty in the College of Business can do case studies from the data accumulated by Delmarva Power and look at the impact of replacing some DSU fleet vehicles from EV's. Our sociologist and environmental scientist can study the impact of EV on society and assist REEC in developing material to educate the public."

4. GENERAL MOTORS' PUBLIC COMMENT.

26. On October 16, 2017, Director Britta Gross of General Motors submitted a written comment attached to the Application supporting Delmarva Power's proposed Electric Vehicle (EV) Program. "Delmarva Power is proposing a project that aims to address and study the market barriers most relevant to the EV market today, namely the lack of charging infrastructure and the lack of consumer awareness. This proposal is an opportunity to invest strategically in forward-looking infrastructure that will provide learnings about consumers and charging infrastructure so that consumers can have more confidence in EV technology.

"GM has invested billions of dollars to develop electrification technologies, including the state-of-the-art Chevrolet Volt and Chevrolet Volt EV, which has swept the industry's most prestigious car awards.... The Bolt EV is the industry's first affordable, long range EV with an EPA estimated range of 238 miles-per-charge, and is broadly available at Chevrolet dealers across Delaware. This advanced technology will require more widespread charging infrastructure to convince consumers that EVs can be driven anywhere they need to go."

"There are currently over 1,000 EVs registered in Delaware, and in order to grow the EV market (and attract even more advanced transportation technologies to the state, such as self-driving EVs), Delaware needs to invest in charging infrastructure that addresses consumer and industry concerns. The infrastructure program proposed by Delmarva Power addresses two key areas important to consumers - home charging and public charging:

Home Charging - The majority of all EV charging today is done at home. And while most EV drivers today live in single-family homes, consumers living in multi-unit dwellings currently represent an untapped segment of potential EV buyers.

Public Charging - Consumer confidence in EVs is most influenced by the availability of public charging. A 2016 survey of 2,500 consumers by Altman Vilandrie & Company found the top reason customers gave for not wanting to purchase a plug-in electric vehicle was a perceived lack of charging stations (85%). And public charging can increase the practicality of EVs and the number of places an EV can go, with a special focus on destinations typically outside a consumer's normal daily driving patterns (e.g. airports, beaches, hotels, resorts, etc.)."

"EV charging infrastructure is vital to the growth of the EV market and will lead to long-lasting emissions reductions that increase over time as the market expands."

5. THE EDISON ELECTRIC INSTITUTE'S PUBLIC COMMENT.

27. The Edison Electric Institute's (EEI) Executive Vice President of Business Operations, Philip D. Moeller, submitted a written comment attached to the Application on October 18, 2017 supporting Delmarva Power's EV Program proposal.

"EEI is the association that represents all U.S. investor-owned electric companies. Our members, which include Delmarva Power, provide electricity for 220 million Americans, and operate in all 50 states and the District of Columbia.

EEI, and the Institute for Electric Innovation (IEI), recently released a report forecasting EV sales to grow to seven percent of all new car sales by 2025, but found that approximately 2.2 million additional public charging ports will be needed to support this forecast - a roughly 30 to 40 times increase over the charging infrastructure available today.

The Delmarva program directly benefits customers by lowering the barrier to entry for EV adoption. Program options including the monthly bill credits for off-peak charging, the 50 percent cost-share on smart Level II chargers, and discounted time-of-use charging rate all serve to lower the cost of EV ownership. The additional electricity demand from EV's, added to the grid in an efficient manner, puts downward pressure on rates for all customers."

6. GRIDWISE ALLIANCE'S PUBLIC COMMENT.

28. On October 13, 2017, the GridWise Alliance ("GridWise") CEO, Steven G. Hauser, submitted a written comment attached to the Application supporting Delmarva's proposal to enhance vehicle electrification in Delaware.

"The GridWise Alliance consists of a unique cross-section of industry members, including electric utilities, information and technology equipment and service providers, National Laboratories, academic institutions, Regional Transmission Organizations (RTOs), and Independent System Operators (ISOs), and the Bonneville Power Administration (BPA).

Delaware is already a leader in supporting and promoting electric vehicles (EVs) through various incentives for vehicles and charging infrastructure, and through the designation of I-95 as an electric vehicle charging corridor, according to Plug-In America. With efforts underway to expand the use of EVs across Exelon's service territory in the Mid-Atlantic Region, the current Delmarva proposal would facilitate regional infrastructure planning and efficiencies and would further enhance vehicle electrification deployment in Delaware and in the Mid-

Atlantic Region, as a result.

According to a recent report by the Pacific Gas and Electric Company (PG&E), electric utilities are well-positioned to provide tools and "expertise in infrastructure development, rate design, grid support, customer education, fleet procurement, [and] relationships and credibility with a wide range of stakeholders.... The Delmarva proposal before the Commission illustrates a potential application of these utility capabilities.

Reports indicate the one current and anticipated challenge with further vehicle electrification is a lack of sufficient public charging stations. According to the PG&E report, "[i]ncreasing the availability of public charging stations (particularly fast charging stations along major transit corridors), can assuage range anxiety - one of customers' chief concerns about electric vehicles. Electric providers have the necessary infrastructure development expertise, and [their] business models enable [them] to make early investments where others may be reluctant to step in, despite the societal need. Thus, electric utilities can help lower some of the barriers to deploying charging stations. The Delmarva proposal before the Commission is designed to test the effectiveness of EV programs and infrastructure, collect vital consumer data, and ensure consumer needs are being met. It also will promote greater education, awareness, and outreach regarding the customer and sustainability benefits of EVs. This proposed EV program also would help test rate design structures and their efficacy before being rolled out on a large scale.

In addition, as GridWise has publicly stated previously, changes to the electric system need to be supported by business model, rate structure, and regulatory reforms that enable utilities/electric service providers to own and operate assets and compete on a level playing field."

7. GREENLOTS' PUBLIC COMMENT.

29. Greenlots' VP of Policy, Thomas Ashley, filed a written comment with the Commission supporting Delmarva's proposed

"Greenlots is a leading provider of grid-focused electric vehicle charging software and services. The Greenlots network supports a significant percentage of the DC fast charging infrastructure in North America, and is increasingly supporting deployment in the workplace and residential Level 2 space.

Greenlots' smart charging solutions are built around an open standards-based focus on future-proofing while helping site hosts, utilities, and grid operators manage dynamic electric vehicle (EV) charging loads.

While acknowledging that much more will need to be done to transform the market, we support the direction of this plan. The Plug-In Vehicle charging initiatives Delmarva is proposing (the PIV Program) largely recognize and seek to modestly get in front of grid integration challenges and opportunities through a suite of limited pilot programs targeting education and outreach, incentivized off-peak charging and energy use management, information gathering, and longer-range or mainstream electric transportation.

... [W]e encourage the Commission to both approve Delmarva's application and work with the utility to build on these pilots by transitioning to a larger program in the near future.

...[U]tilities are well positioned to, and should play a key role in deploying, owning and operating not only corridor and public EVSE but also EVSE in other market segments, including multi-family, workplace and residential. These PIV Program offerings are good - albeit very modest - first steps. We encourage Delmarva and the Commission to work to expand these initiatives and accrue further benefits from utility optionality in its level of involvement in supporting and deploying infrastructure to support EV drivers sufficiently, transform the market and increase the utilization of the grid in a manner that benefits all utility customers."

8. CHARGEPOINT'S PUBLIC COMMENT.

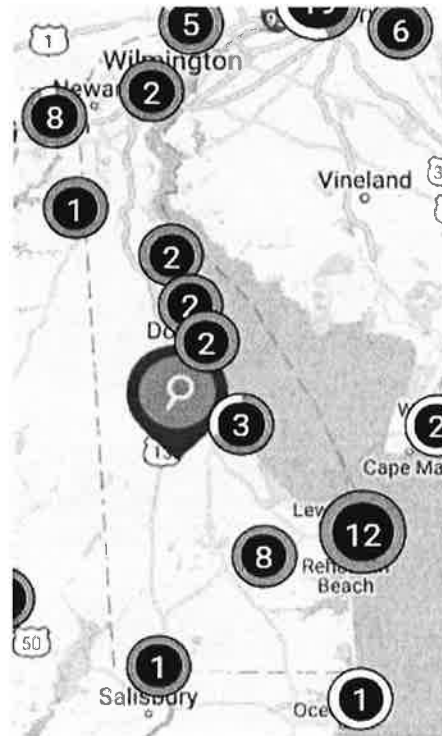
30. On February 28, 2018, Chargepoint's Director of Policy, David Schatz, filed a written comment with the Commission supporting some aspects and not supporting other aspects of Delmarva's proposed Electric Vehicle Charging Program.

"ChargePoint is the leading electric vehicle (EV) charging network in the world, with charging solutions in every category EV drivers charge, at home, work, around town and on the road. With more than 45,000 independently owned public and semi-public charging spots and more than 7,000 customers (businesses, cities, agencies and service providers), ChargePoint is the only charging technology company in the market that designs, develops and manufactures hardware and software solutions across every use case. Leading EV charging hardware manufactures and other partners rely on the ChargePoint network to make charging station details available in mobile apps, online and in navigation systems for popular EVs. ChargePoint drivers have completed 34 million charging sessions, saving upwards of 34 million gallons of gasoline and driving more than 800 million gas-free miles.

There are currently more than 36 public access charging spots in Delaware that operate on the ChargePoint network, and Figure 1 below shows a map of charging ports. ChargePoint's customers include Tanger Outlets, Royal Farms, and Delaware Transit Corp. As of the third quarter of 2017, there are 1,173 electric vehicles registered in the State, representing 0.49% market share, and roughly 450 drivers in Delaware are registered with ChargePoint.⁹ Those drivers can seamlessly use stations in the ChargePoint network, access data on charging sessions, receive updates on ongoing charging sessions via text, and, if required by station owners, pay for charging sessions.

⁹ Polk, "MarketInsight", 2017.

Figure 1: Public access ports on the ChargePoint Network in Delaware.



*Support for Limited Pilots that Harness
Competition, Innovation, and Customer Choice*

With this in mind, a pilot program should work with third parties to harness the innovations of the competitive market for charging solutions that meet the needs of utilities, drivers, and site hosts to ensure efficient integration of EV charging load while avoiding restrictions on customers' choices or driver experience.

ChargePoint notes that through the deployment of smart charging infrastructure, which is capable of relaying data to utilities and demand response, electric vehicles can be a responsive beneficial load to the grid.

In integrating smart charging solutions, customer choice of charging equipment and services is an essential feature of any utility-supported program. Site hosts, which are the local entities that would physically host or own charging stations in their parking lots, are best positioned to determine the technology deployed on their properties. Site hosts know the unique needs of their own customers, tenants,

employees or other type of EV driver visiting that site and are in the best position to tailor the EV driver experience. Should utilities invest in or incentivize EV charging equipment and services, site hosts must have a choice of a range of vendors meeting reasonable qualifying criteria. Maintaining this choice ensures that site hosts choose the right solution for their property, while encouraging an ongoing competitive market for charging solutions beyond a one-time utility request for procurement.

We support the intent of Delmarva to deploy a diverse set of smart offerings in the electric vehicle charging infrastructure space in order to assess how increased EV adoption interacts with the grid. However, the pilot proposal is unclear in terms of the mechanism for customer choice of charging solutions and the extent of which local sites hosts can interact and determine the EV driver experience through setting driver pricing and other functions. We recommend the Commission uphold customer choice and control in this pilot and subsequent deployments, in order to preserve the competitive market for charging solutions in Delaware.

It should also be noted that utility ownership of charging equipment, as described in Offerings 5 and 6 of Delmarva's application, is not a prerequisite to unlocking grid benefits. Commercially available charging network solutions currently provide the ability for third parties, such as utilities, to access interval level charging data and conduct load management at stations owned by one of their customers. In addition, the program can be more cost effective and successful when program participants financially contribute to the costs of the deployments. ChargePoint also notes that for the segments targeted in Offerings 5 and 6, DC fast stations along corridors and Level 2 stations in neighborhoods, deployments already exist. The utility can leverage the existing and continuing private sector driven deployments of charging stations to broaden the data collection intended to assess grid impacts and planning.

Support for an Embedded Metrology Pilot.

Delmarva's application calls for several

offerings to utilize Schedule "PIV," which is an EV-only rate.¹⁰ ChargePoint supports pilots of EV-only rates, as they allow for implementation of innovative rate designs that can optimize charging behavior, enabling the greatest benefit to the grid. For residential customers, EV time-of-use (TOU) rates can provide a clear price signal to incentive charging to occur during "off-peak" periods. In the case of commercial customers, TOU rate designs provide an important input into the site host's determination of the ultimate fee to set for the driver to access charging services.

It is important to note that the EV-only offerings under Delmarva's pilot proposal call for installation of a secondary meter on site host property. Installation of a secondary utility meter is often costly, time-consuming, and unnecessary. ChargePoint notes the availability of embedded meters in commercially-available charging stations that eliminates the need for secondary utility meters. The use of an additional utility meter may provide value as part of a temporary pilot to confirm embedded charging station metrology accuracy, but would not be efficient or cost-effective as a solution for a larger program.

ChargePoint recommends that Delmarva pursue a pilot of embedded metering capabilities, which would reduce costs and test technology for use in a future larger-scale program.

ChargePoint supports the application of the NIST Handbook 44 (HB44) standard to sub-meters used in utility pilots. Proof of our products' compliance with HB44 accuracy (measurement tolerance) requirements can be provided, using NIST-traceable test standards and the industry's leading EVSE test equipment.

Amend Incentives to Address the Multi-Unit Dwelling Segment

Multi-unit dwellings (MUDs) represent a critical, underserved market for EV charging infrastructure. ChargePoint supports utility programs that offer incentives toward developing MUD charging infrastructure and lower the

¹⁰ Offerings 1, 2, 3, and 4 under Delmarva's proposal all intend to pilot Schedule "PIV" rates.

barrier for site hosts to purchase and deploy charging stations for residents. In the case of MUD charging infrastructure, the greatest barrier tends to be installation costs, which may be higher than the cost of the charging equipment itself. The range and variation of installation costs is primarily due to the distances between the EV parking spaces and the paneling on the property. Delmarva's proposal for incenting MUD charging stations requires the site hosts to bear the costs of installation, while providing a 50% discount on charging stations. ChargePoint believes that in order to effectively incent development at MUDs, a utility program should also address the installation cost barrier in addition to the charging station itself. This could be accomplished by broadening the rebate, with caps, to include both installation and charging station costs or by the utility installing and covering the costs of the electrical infrastructure on the customer side up to where the station is installed.

Addressing regulatory barriers for charging station deployment

Currently, 20 states and the District of Columbia have determined, through statutory amendment or regulatory clarification, that charging stations are outside of regulatory commission jurisdiction.¹¹ In accordance with proceedings in Docket No. 17-0933, ChargePoint will assist the Commission, DNREC, Delmarva, and other interested stakeholders in pursuing clarifications to the Commission's jurisdiction over charging stations."

¹¹ "Arkansas Code §23-1-101(9); Cal. Pub. Util. Code, § 216(1); Colo. Rev. Stat. § 40-1-103.2(2); CT Section 16-1 of the 2016 supplement to gen. statutes; D.C. Code §§ 34-204; Fla. Stat. § 366.94; Haw. Rev. Stat. § 261-1(2); Idaho Code § 61-119; 220 Ill. Comp. Stat. §§ 5/3-105(C), 5/6-102; Me. Rev. Stat. Ann. Tit. 35, §§ 313-A, 3201(5), 3201(8-B); Md. Code Pub. Utils. §§ 1-101(J)(3), 1-101(X)(2); Minn. Stat. § 216B.02(Subd.4); Missouri PSC File No. ET-2016-0246; NYPSC Case No. 13-E-0199; Or. Rev. Stat. § 757.005(1)(B)(G); PA PUC Order R-2014-2430058; Utah Code §§ 54-2-1(7)(C), 54-2-1(19)(J); Va. Code Ann. § 56-1-2:1; Wash. Rev. Code § 80.28.310; W.Va. Code § 24-2D-3." (entire footnote quoted from Comment)

9. REACH RIVERSIDE'S PUBLIC COMMENT.

31. David J. Ford, the Chairman of Reach Riverside in Wilmington filed a Public Comment on behalf of this non-profit organization, of which the Teen Warehouse, Inc. is affiliated:

"On behalf of the Board of Directors of The Teen Warehouse, Inc., and Wilmington's teens, we would like to ask you and your fellow Commissioners to give special consideration to the electric bus initiative included within Delmarva's proposed rate increase... In approving Delmarva's proposal, you will be providing a vital community service as the bus initiative is going to help change the face of Wilmington by improving the life outcomes of the city's youth.

How can a utility price increase accomplish that? At present, Delmarva is working in partnership with The Teen Warehouse, Inc. on an exciting initiative that will turn the now vacant Prestige Academy Building on Thatcher Street in NE Wilmington into a vibrant hub where teens can access a myriad of recreation, education, arts, college & career readiness and mental and physical wellness programs that will help them thrive and succeed.

For The Teen Warehouse to achieve its' greatest potential however, it first must overcome one of the greatest barriers facing youth in Wilmington and urban neighborhoods throughout America when it comes to accessing out of school time programs and services; access - they need to be able to get there in order to reap the potential benefits.

In preparation for the opening of The Teen Warehouse in the fall of 2019, Delmarva and the University of Delaware [UD] are working collectively to implement an electric bus initiative that will provide our city's young people with the transportation they need to participate in The Teen Warehouse's program offerings. Costs to develop and run that effort are included in the proposed rate increase under consideration. At present, Delmarva and UD are in the process of using the innovative V2G technology that will not only provide reliable, clean, economic and safe transportation, the

initiative will return power to the grid while charging.

The Teen Warehouse is Wilmington's best hope to change the outcomes for many inner city youth who struggle to see beyond a future of poverty, violence and a lack of opportunity. By supporting the rate increase, you will become a partner in this much needed effort to help our young people survive, thrive and give back to our communities in the same way you have given to them."

10. CLEAN AIR COUNCIL'S PUBLIC COMMENT.

32. On January 17, 2018, Logan Welde, Esq., Staff Attorney for the Clean Air Council, commented at a Public Comment Session in support of Delmarva's proposed Electric Vehicle Program.

"The Clean Air Council is a member-supported environmental organization serving Pennsylvania, New Jersey and Delaware. The Clean Air Council supports Delmarva's petition for approval of a program for plug-in vehicle charging.

Two large impediments are quickly fading, price and range. There does remain one large impediment, and one that the Council believes should, at least in part, be resolved by utilities, the infrastructure.

This is truly a Field of Dreams moment. If you build it, they will come. Without providing this essential framework, including charging stations, Delaware will be a laggard in the adoption of EVs.

The EV tide is coming. The list of countries and municipalities that have announced their ban of fossil-fuel vehicles is large and growing.

The carmakers also see the coming change.

General Motors has declared it will phase out gas-powered vehicles and go all electric.

Ford, Toyota, Mazda, Daimler, Renault, Nissan, Mitsubishi and VW have all pledged billions to the development of electric vehicles.

And two manufacturers Volvo and Jaguar Land Rover have announced they will be all electric by next 2019 and 2020 respectively. According to General Motors, the future is all electric.

While Delaware may not have a tremendous amount of EVs at this moment, the State saw one of the greatest growths in the country between 2015 and 2016 at 64 percent. And the State has implemented through the Delaware Department of Natural Resources and Environmental Control, the Delaware Clean Transportation Incentive Program that provides rebates for the purchases of EVs and for charging stations.

In the coming years, that 64 percent will be dwarfed.

There are many benefits to EVs, but the one that the Council is most excited about is the potential reduction in local air pollution.

In 2017, the transportation sector passed the power generation sector to claim the title for largest source greenhouse polluters in the U.S.

Our vehicles, including cars, busses, trains, ships and airplanes are a huge public health concern. The main air pollutants emitted from vehicles are carbon monoxide, nitrogen oxides, particulate, matter, volatile organic compounds, and benzene.

In addition, many drivers leave their vehicles idling, which can be up to 30 percent more toxic as incomplete combustion occurs and more harmful emissions are produced.

The Council acknowledges that just switching from combustion engines to EVs will not solve the air pollution problem as the second largest contributor to global greenhouse gases is the power generation sector.

However, that sector is making tremendous strides, and the Council believes in the near future they will be producing a fraction of the air pollution it does today through technology upgrades, controlling stack emissions, and a much greater mix of solar, wind and turbine energy.

In fact, it does not seem possible for Delaware to meet its stated goal of reducing greenhouse gasses by 28 percent by 2025 without a massive electric transformation in the transportation sector.

Every day countries and car makers are moving closer to a 100 percent electric fleet. It makes more economical sense, it makes more practical sense, and it is more environmentally sustainable.

There is no doubt that Delmarva must play an instrumental role in the installation and maintenance of EV charging system. The addition of the EV charging system and all of the millions of EVs relying on it will be the most drastic and impactful change of the last 100 years.

The days of the internal combustion engine are near the end. The only cars and trucks that will be in use over the coming decades will, in fact, be electric.

The Council strongly encourages the Commission to approve Delmarva's petition.

The Council would also challenge the Commission to go even further. Not only should personal vehicles be considered, but whole fleets should be viewed as prime targets for switching from combustion to electric.

The Commission should push Delmarva to study how school busses, public transit buses, the trucking industry and shipping industry can go electric as well.

While the Council believes that Delmarva and other utilities must be deeply involved in building this infrastructure, private companies should take on the brunt of the work and invest the most capital in this infrastructure." (Tr.-pp.52-59)

11. CAESAR RODNEY INSTITUTE'S ("CRI's") PUBLIC COMMENT.¹²

33. On April 20, 2018, CRI's Director of its Center of Energy Competitiveness, David T. Stevenson, filed a written comment with the Commission opposing Delmarva's proposed Electric Vehicle Charging Program.

According to CRI,

"Delmarva's involvement in electric charging infrastructure ... will not help the environment, will exacerbate the transfer of money from the poor to the rich, and will not add to the knowledge base of how power companies need to prepare for any additional use of Battery Electric Vehicles ("BEVs"). In addition, the market for BEVs is likely to develop slowly, and time of use electric rates will have little impact on charging behavior. Further, BEVs market expansion should not be encourage until a tax mechanism is in place to ensure BEV owners are contributing fairly to the Highway Trust Fund. Delmarva's petition should be denied.

Delmarva Power claims experience with electric vehicle (EV) charging is needed to prepare for the coming wave of plug-in electric vehicles (PIV). Delmarva sister companies Delmarva Power Maryland, and Baltimore Gas & Electric are already working under utility commission orders to gather the same information on a much larger population base. According to Delmarva's revised application there are about 1000 PIVs in Delaware, with about 300 of those all electric vehicles (BEV) with the balance plugin/gasoline hybrids (PHEV). According to an MJ Bradley, May 2016, report, "Plug-in Electric Vehicle Cost-Benefit Analysis", there were 2162 BEVs in Maryland on January, 2016, and 3,741 PHEVs, so Delaware and Maryland have about the same EV market share considering population. Nationwide there are already close to 400,000 PIVs, and several other states have the same kind of program Delmarva is asking for. The information Delmarva seeks is available elsewhere including sister companies.

One of the largest barriers to the expansion of

¹² Although CRI is a party and later testified at the evidentiary hearing, it first submitted a Public Comment.

the EV market is the lack of EV charging stations, just like the availability of gasoline stations initially hampered the adoption of gasoline powered vehicles. An unregulated market for gasoline stations quickly solved the problem as startup companies competed for market share by having the most stations. Both the commission and Delmarva are already discussing the need to make distributed charging subject to utility commission regulation through legislative action. That strategy is guaranteed to slow widespread deployment of charging stations. Regulatory review would be a barrier to entrepreneurs, and is guaranteed to slow market entry.

It is in the public interest Delmarva Power not subsidize the investment in electric vehicle charging stations. As a regulated utility with a guaranteed rate of return about twice the rate of unregulated companies, and the ability to offload the investment costs to all electric ratepayers, Delmarva would have an unfair competitive advantage compared to free market companies. Historically, regulated monopolies are only granted when duplication of infrastructure investment would impede widespread adoption of a technology. That is not a barrier in this case. Allowing Delmarva this advantage would have a chilling effect by discouraging free market entrepreneurs from filling the need for charging stations in innovative, widespread ways.

Delmarva quotes an Edison Electric Institute study forecasting as many as 7 million PIVs by 2025 signaling urgency is needed to prepare for a surging market. Similar forecasts were made for gas/electric hybrids but market share growth has stalled, and hasn't moved much beyond early adopters. Market share peaked at about 3 percent in 2013, and has fallen to about 2 percent of annual sales as gasoline prices fell as shown in the chart below. PIV sales have grown to about 0.5 percent of the US market, but only because of massive, and unsustainable, government subsidies. A federal subsidy of up to \$7,500 per passenger vehicle tax rebate combined with a Delaware subsidy of up to \$3,500 per vehicle and another \$500 subsidy for a charging station, adds up to an incredible total of \$11,500 subsidy per vehicle. Dr. Wayne Winegarden reports for the Pacific Research Institute in his article titled "Cost Subsidies for the Rich,

"For example, after Hong Kong eliminated its tax break for EVs in April 2017, registrations of new Tesla electric cars in Hong Kong fell from 2,939 to zero. Similarly, after Georgia eliminated its \$5,000 EV subsidy in 2015, EV sales fell 89 percent in two months. These drastic sales reductions are an indication that the demand for EVs is based solely on the distortions created by government subsidies."

According to CRI, [t]he basic cost issue for EVs is the cost of the batteries. Current battery technology has a limited potential to store electrons. The economies of manufacturing scale for existing battery technology have already been mostly realized because of battery use in electronics. Further battery cost reductions require an invention of better batteries, an event that cannot be scheduled. In the meantime, significant technological advances in gasoline fueled engine efficiency have already been announced by Toyota and Nissan that will greatly advance fuel efficiency suggesting potential emission savings from EVs will be met by gasoline, and/or gas/electric hybrid powered vehicles at a much lower cost. It is unlikely EVs will gain significant market share in the foreseeable future.

A review of IRS tax records show 99 percent of PIVs were purchased by families with adjusted gross incomes above \$50,000 a year, with 79 percent above \$100,000 a year.

Delmarva's revised application acknowledges 80 percent of residential recharging is voluntarily done at home overnight during off peak hours. There is a good chance the other 20 percent of charging is done out of necessity at other times. Therefore, off peak pricing won't have much impact. The US Department of Energy Alternative Fuels Data Center estimates fueling with electricity costs between one third and one half of fueling with gasoline. With that built in fuel advantage, PIV owners refueling behavior is unlikely to be influenced by the \$94 to \$116 annual savings projected by Delmarva based on the off peak rates.

A significant portion of highway construction is paid for with federal and state Highway Trust Funds largely funded by taxes on gasoline. BEVs will cause the same wear and tear on highways,

and will create just as much traffic congestion, but owners will not pay their share of new construction and repair. A good comparison in cost can be made between the base model 2018 Ford Focus gasoline car with an MSRP of \$17,860 versus the same BEV model at \$31,445, a \$13,586 difference. The Toyota Prius hybrid has an MSRP of \$25,142, a \$6,303 discount over the Focus BEV. In Delaware, fuel taxes cost \$0.414 per gallon, or 16 percent, of the current \$2.60 per gallon gasoline price, and according to NHTA a typical driver is driving 13,476 miles a year. The extra Delaware Motor Vehicle document fee of 4.25 percent only adds \$268 to the Focus BEV compared to the Prius, but the Prius owner will pay \$1610 in gasoline taxes over the 15 year life of the vehicle. A standard Ford Focus owner will pay \$577 less in document fees than a Focus BEV buyer, but will pay \$2790 more in gasoline taxes. There should be a higher document fee for the BEV models.

The current life time wheel to wheel emission differential between hybrids and BEVs in Delaware is only about 7.5 tons of carbon dioxide, or 17% based on the electricity systems mix of fuels used in power plants, according to information provided in Delmarva's revised application (page 4 of Appendix A). Hybrids actually already have lower emissions than PHEVs. As mentioned above hybrids are expected to become significantly more efficient, so the emission differential should shrink. Considering the difference in lifetime fuel cost, the initial price differential, and the difference in document fees, the Focus costs \$6086 more than the Prius. So, it costs \$811/ton for the emission savings. The most recent emissions allowance price in the Regional Greenhouse Gas Initiative was less than \$4/ton. Moving to BEVs is not a smart way to reduce carbon dioxide emissions."

"Delmarva also made the claim BEVs will lead to less dependence on foreign oil. The US Energy Information Agency forecasts the US will be energy independent in just a few years."

12. MEMBER OF THE PUBLIC'S PUBLIC COMMENT.

"I hope the Commission factors into pricing and promotion electric charging stations, public or at home, the cost of electric vehicles (EV) riding on the roads built and maintained by the Delaware Department of Transportation. I

understand the environmental benefits of EVs, however the tangible cost of their use of existing highways is as real as someone who pays fuel tax at the gas pump. I hope the two departments within State government investigate these costs and work towards an equitable fair solution to drivers of both EVs and gas powered vehicles."

III. SUMMARY OF EVIDENCE

A. Company Pre-Filed Direct Testimony. Testimony of Robert S. Stewart.

34. The evidentiary record includes the following pre-filed direct testimony filed by the Company: a) Robert S. Stewart, Pepco Holdings, Inc.'s ("Pepco") Manager of Smart Grid and Technology; and b) Peter R. Blazunas, a Senior Rate Analyst in Pepco's Regulatory Strategy and Revenue Policy Division. (Exhs. 4 & 5, respectively.)

35. Witness Stewart addressed the policy implications of the Company's Applications, including the increasing number of electric vehicles, required charging infrastructure, and anticipated demand upon the Company's electric distribution system. (Exh. 4, p.2)

36. 80-86% of electric vehicle owners charge at home. (*Id.* at pp. 5,10.) Public space infrastructure like that proposed by Delmarva alleviates "range anxiety" which describes what an owner of an electric vehicle feels when the owner believes that they may run out of electric charge. (*Id.*) According to Delmarva, the Company "is uniquely positioned to facilitate and accelerate the electrification in this area as it is part of the PHI territory and therefore can join efforts underway by PECO [Philadelphia Electric Company] in Pennsylvania, Baltimore Gas & Electric in Maryland, and Pepco in the District of Columbia." (*Id.* at pp.5-6.)

37. Witness Stewart testified that, since Delmarva is a regulated public utility, it was obligated to help make the PIV charging

market accessible to all customers. (*Id.* at p.6.) According to Delmarva, "leaving development [of the PIV charging market] to third parties likely would result in stunted growth and only in areas where they can maximize profits." (*Id.*; see Sec. II (B)(10) Chargepoint's Public Comment, Section *contra.*)

38. According to the Company, all Delmarva customers can benefit from this program by utilizing the power grid by using unused capacity during non-peak times. (*Id.* at pp.7-8.) Electric charging is a load which is "significant" (it stores as much electricity as the average residence consumes in a day), and "inherently flexible" (they are driven an average of 1 hour per day so they can be easily charged during off-peak hours). (*Id.* at p.7.) These characteristics allow for electric distribution assets such as transformers to be more effectively managed. (*Id.*)

39. "Since 2011, electric vehicles have experienced double digit growth rates year-over-year." (*Id.* at p. 9.) As of August 2017, 650,000 electric vehicles had been sold in the U.S. and seven (7) million additional sales are anticipated by the year 2025. (*Id.* at pp.9-10.) Thirty five (35) models, including more moderately priced models, are anticipated from numerous auto manufacturers by the end of 2018.¹³ (*Id.* at p.10.)

40. "Between 2015 and 2016, Delaware experienced one of the highest growth rates for PIVs in the country." (*Id.* at p.14.) "The latest projection from EPRI [the Electric Power Research Institute] show a potential of as many as 29,000 PIVs on the road in Delmarva Power's service territory by the year 2025." (*Id.*)

¹³ These electric vehicle manufacturers include BMW, Ford, GM, Hyundai, Jaguar, Nissan, Tesla, Toyota, VW and Volvo. (Exh. 6, p.10.)

41. According to Delmarva, its proposed program compliments existing positions taken by the State of Delaware as well as existing state programs.

The [federal] Clean Air Act allows states to either follow the federal requirements for zero emission vehicles or adopt California's vehicle emission regulations. For Zero Emission Vehicle states which have implemented California's regulations, sales of zero emission vehicles are required to be 15.4% of total car sales in each state by 2025. Delaware has adopted California's vehicle emission regulations and is an observer state to the Zero Emission Vehicle component of the Clean Air Act. Delaware has also joined the U.S. Climate Alliance and is committed to upholding the Paris Agreement to combat climate change. This includes a commitment to achieve a 28% reduction in greenhouse gas emissions (from 2005 levels) by 2025. Emissions from the transportation sector represent approximately 30% of greenhouse gas emissions.

To help facilitate this transformation to electric vehicles, various state and federal initiatives incentivizing the growth of the electric vehicle market have been put in place, including but not limited to, the Delaware Clean Vehicle Rebate Program, the Delaware Electric Vehicle Charging Equipment Rebate Program, the Delaware Alternative Fueling Infrastructure Grant Program, and a federal tax credit of up to \$7,500 for qualified PIVs. (Exh. 4, pp.8-9)

42. Since an electric vehicle owner is expected to use 25% more electricity than a typical residential customer, Delmarva is concerned about its demand management and infrastructure programs. (*Id.* at p.10.) In response, the Company is attempting with this Application to avoid system upgrades while maintaining reliability to help minimize costs to ratepayers. (*Id.*)

43. According to the Company, "a utility can and should play an integral role in enabling and accelerating electric transportation,

including educating customers and other stakeholders,¹⁴ managing and optimizing vehicle charging, creating off-peak charging incentives, and deploying infrastructure up to and including ownership and operation of charging equipment." (*Id.* at p.11.) Delmarva can also manage its power flows, it may site projects with third party charger developers, and expand service in economically disadvantaged areas. (*Id.* at pp.11-12.)

44. While PIV current charging levels do not affect the grid, anticipated future increases, particularly at residential locations with off-street parking, i.e., housing developments, could be "material" at the distribution and circuit levels. (*Id.* at p.12.) Two (2) 3 kWh chargers exceed the load of one (1) residence. (*Id.*) Thus, these vehicles could increase peak loads, which Delmarva is monitoring. (*Id.*)

45. According to Delmarva, in addition to its rate plans and programs, "its [e]ducation and outreach efforts will focus on providing valuable information to reduce range anxiety concerns." (*Id.* at p.16.) Customers will also be advised about the 100% renewable energy option to off-set participants' charging and provide carbon-free charging. (*Id.*) Delmarva customers may enroll in these programs through the Company's website or by U.S. Mail. (*Id.* at p.17.)

46. **PRE-FILED DIRECT TESTIMONY OF PETER R. BLAZUNAS.** Peter R. Blazunas, a Senior Rate Analyst in Pepco's Regulatory Strategy and Revenue Policy Division, also submitted pre-filed direct testimony. (Exh. 5) Witness Blazunas' testimony focused on Delmarva's proposed rate design regarding the proposed seven (7) Service Classifications, the proposed cost recovery, and the estimated impact upon residential rates (7 cents per month for a typical SOS customer). (*Id.* at

¹⁴ Examples of stakeholders include "automakers, charging service providers transportation providers, and state and local governments..." (Exh. 4, p. 13.)

47. Company witness Robert S. Stewart previously described most aspects of the seven (7) proposed Service Classifications. (See Paragraph 1, *supra*.) However, Witness Blazunas expanded upon some additional rate design issues as to Offerings 1 and 3.

48. Offering 1 - Residential - with Existing Electric Vehicle Supply Equipment providing discounted whole House Time of Use encouraging charging during off-peak hours, i.e., peak hours are between 12 noon and 8 p.m. Monday through Friday.

49. Offering 3 - Residential - without Existing Electric Vehicle Supply Equipment - the Company proposes to provide Smart Level 2 Equipment to provide a time of use rate, and for customers whose PIVs have a range of 30 miles or greater, the Company will install Smart Level 2 equipment at fifty (50) customers' homes at a reduced cost and will also install a second AMI meter to measure the energy of the PIV directly; Level 2 stations are 240-volt, AC power mounted on a wall or a pedestal, and take 3-5 hours to charge a fully depleted battery. (See Para. 1, *supra*.)

50. According to Witness Blazunas, Offerings 1 and 3 each "include a time-based SOS rate intended to encourage usage, including charging, during off-peak hours. The SOS rate provides an approximately 4.5 to 1 ratio between the price at on and off-peak hours during the summer months (June through September), and an approximately 3.9 to 1 ratio between the price at on and off-peak hours during the winter months (October through May). (Exh. 5, pp.3-4.) Again, peak hours are between 12 Noon and 8 p.m., Monday through Friday. (*Id.* at p. 5.) Unlike Offering 1,

this Offering is available to net energy metering customers.¹⁵ (*Id.*)

51. As to cost recovery, Company Witness Blazunas testified that the Company seeks to establish a Regulatory Asset to defer costs associated with implementing the proposed Program in the amount of \$2,238,550. (*Id.* at p.7.) A description of the estimated costs is as follows:

Table 1: Program Cost Component

| Cost Component | Offering(s) | Type | Estimated Total Cost |
|--|-------------|---------|----------------------|
| Capital Assets (Offerings 3-7) | 3-7 | Capital | \$ 840,500.00 |
| Whole House TOU | 1 | O&M | \$ - |
| Residential Customers with existing EVSE and receiving FleetCarma® units | 2 | O&M | \$ 81,550.00 |
| School Bus Offering | 7 | O&M | \$ 370,000.00 |
| Billing | 1-7 | O&M | \$ 50,000.00 |
| Customer Enrollment and Outreach | 1-7 | O&M | \$ 200,000.00 |
| Reward Credit Processing | 1-7 | O&M | \$ 97,500.00 |
| Program Management | 1-7 | O&M | \$ 100,000.00 |
| Systems Interfaces and Updates | 1-7 | O&M | \$ 424,000.00 |
| Analysis and Reporting | 1-7 | O&M | \$ 75,000.00 |
| Total | | | \$ 2,238,550.00 |

(*Id.* at p.8.)

The total estimated cost of the program proposed in the Amended Application was approximately \$2,238,550. The Company estimated that approximately \$480,000 of the total cost would be recovered from program participants through either direct contributions as part of the cost sharing included in Offerings 3 and 4 or the Company's public charging rate options in Offerings 5 and 6. The remainder would be recovered from the Company's ratepayers. (Exh. 3, Amend. App., p.23; Exh. 5, p.7)

¹⁵ Net energy metering or "NEM" is a special billing arrangement "whereby electric energy generated by the Customer, through a Customer-Generated Facility and delivered to the local distribution facilities of an Electric Supplier, may be used to offset electric energy provided by the Electric Supplier to the Customer." 26 Del. Admin. Code. § 3008 (1.0)

52. Moreover, the Company seeks that the Program's costs categorized as Operations & Maintenance (\$1,398,050-see above) be deferred to a Regulatory Asset and amortized over a five (5) year period; and those costs associated with capital assets (\$840,500) be deferred to a Regulatory Asset and amortized over a fifteen (15) year period, and also be incorporated into rate base and earn a return as part of a base distribution rate proceeding. (Exh. 5, pp.7-9.)

53. According to the Company, "revenue requirements associated with the proposed Regulatory Asset for costs associated with capital costs [\$840,500] will be assigned ... [to] that Offering's primary beneficiaries." (Id. at pp.8-9.) For example, Offerings 1-4 involve the residential class, and Offerings 5-6 involve the "user of the charge." (Id.) Offering 7 (school busses) and O&M costs (\$1,398,050) would be allocated to customers based upon most recent base distribution case. (Id.)

54. As to the estimated costs of the program, the Company estimates that "a typical [residential] customer using 840 kWh per month will pay an additional seven (7) cents per month..." (Id. at p.9; Sch. (PRB)-3, p.1.) The Company also argues that all ratepayers will benefit financially from this program. For the eight (8) year period 2018-2025, the Company estimates that the added distribution revenues from the vehicle charging program will be approximately three (3) times the estimated PIV Program residential revenue requirement, i.e., \$4.4 million vs. \$1.5 million. (Exh. 5, pp. 9-10; Sch. (PRB)-3, p.10)

B. Public Advocate's Pre-Filed Direct Testimony.

55. The Public Advocate filed the pre-filed direct testimonies of Consultant Glenn A. Watkins and Public Advocate Andrew C. Slater. (Exhs. 9 and 10, respectively.) According to the Public

Advocate, there are few all-electric or hybrid automobiles in Delaware, and what there are, are owned by well off individuals.

56. The Public Advocate argues that Delmarva Power's ratepayers should not be responsible for promoting the adoption of electric vehicles in Delaware and that, if adoption of electric vehicles was a benefit to the state, then all state residents should pay for the benefit. The Public Advocate provided several reasons for its position. First, the Public Advocate cited statistics showing that there are few electric or hybrid automobiles in Delaware, most of which are owned by well-off individuals, as reflected in the graphs below:

| | <u>Total</u> | | <u>New</u> | |
|--|-----------------|-------------|---------------|---------------|
| | <u>Delaware</u> | <u>Kent</u> | <u>Castle</u> | <u>Sussex</u> |
| <u>All Electric:</u> | | | | |
| 2016 | 63 | 4 | 47 | 12 |
| 2017 | 83 | 13 | 58 | 12 |
| 2018 | 17 | 1 | 15 | 1 |
| <u>Hybrid:</u> | | | | |
| 2016 | 204 | 35 | 120 | 49 |
| 2017 | 182 | 27 | 110 | 45 |
| 2018 | 49 | 2 | 40 | 7 |
| <u>All Electric + Hybrid Combined:</u> | | | | |
| 2016 | 267 | 39 | 167 | 61 |
| 2017 | 265 | 40 | 168 | 57 |
| 2018 | 66 | 3 | 55 | 8 |

Graph 2

| Household Income | Percent | Percentage Based On Responses | Accumulated Percentage Based On Responses |
|------------------------|---------|-------------------------------------|---|
| Greater than \$200k | 17% | 19.32% | 19.32% |
| \$175k to \$200k | 5% | 5.68% | 25.00% |
| \$150k to \$175k | 8% | 9.09% | 34.09% |
| \$125k to \$150k | 11% | 12.50% | 46.59% |
| \$100k to \$125k | 15% | 17.05% | 63.64% |
| \$75k to \$100k | 13% | 14.77% | 78.41% |
| \$50k to \$75k | 12% | 13.64% | 92.05% |
| \$25k to \$50k | 6% | 6.82% | 98.86% |
| \$10k to \$25k | 1% | 1.14% | 100.00% |
| No Answer | 12% | | |
| Total | 100% | 100% | |

(Exh 9, pp. 6-7.)

57. Delmarva Power has approximately 318,370 residential, commercial and industrial electric customers. (Exh. 10, p.5) At the time the Public Advocate filed his pre-filed testimony, there were only 362 all-electric vehicles registered in the entire State of Delaware including electric service territories other than Delmarva such as municipalities. (Exh. 9, p.4; Exh. 10, p.5) At that time, there were 903,117 vehicles registered in Delaware. (Exh. 8, Harris, p.14; Exh. 9, Watkins, p.4) Even assuming that all 1,000 registered PIVs and Evs were registered to Delmarva power customers that resulted in only three-tenths of one percent of Delmarva ratepayers owning such vehicles. (Exh. 10, Slater, p.5) "[L]ess than 100 electric vehicles are registered annually in Delaware with the majority of these registrations in New Castle County." (Watkins at p.6.) Finally, the DPA argues that, even if there are 29,000 PIVs in Delaware by 2025, as Delmarva predicts, this still represents only 3.21% of the over 900,000 vehicles registered in Delaware today. ((Exh. 10, p.6)

58. The Public Advocate maintains that PIV adoption will occur in Delaware without Delmarva's proposed programs because climate change is real and is being hastened by human activities. Moreover, the federal government and Delaware already incentivize PIV purchases, so there is no need for non-PIV-owning ratepayers to subsidize their purchase through reduced electric charging rates. (Id. at p.7.)

59. According to Public Advocate, Andrew Slater, range anxiety is no longer a serious concern for those driving electric automobiles.

"While some range anxiety may still exist, we have seen automotive and other businesses promote increased charging stations, and significant investments have been made on this front. In addition, newer electric vehicles now have much longer ranges. The Chevy Bolt and Tesla vehicles,

for example, can go more than 200 miles without a charge. In fact, a Chevy Bolt could potentially travel from Wilmington to Fenwick [Island] and back on a single charge with approximately 16 miles remaining."¹⁶ (Id. at p.12.)

"Meanwhile, the average Delawarean travels 25.7 minutes to work.¹⁷ Using an extremely conservative assumption of a commuter traveling 25 miles per hour, this equates to about 11 miles (25 MPG/60 minutes* 25.7) one way, or 22 miles roundtrip. The increased range of newer vehicles means a Delawarean could travel to and from work for almost two full weeks without ever needing a charge. Clearly, with the increased range of electric vehicles, the need to charge away from home is becoming less urgent or necessary." (Id. at pp.12-13.)

"Delaware has 34 charging stations with 105 charging outlets.¹⁸ DNREC has data regarding the usage of the two charging stations it owns, and data from chargers sited at Royal Farms which were subsidized through a State grant. Through six quarters from July 1, 2016 through October 1, 2017, the average quarterly usage of the two (2) DNREC chargers was 22 transactions.¹⁹ There are 91 days in an average quarter. This means that these two (2) charging stations were used once every four (4) days." (Id. at p.13.)

According to the Public Advocate, "Royal Farms provided data for the four quarters of 2017.²⁰ In the first quarter, five of the ten charging stations were online. 90 vehicles charged at those stations for an average of less than 25 minutes.²¹ This means that only one vehicle charged per day; 80 percent of the charging capacity went unused all day.²²

In the second quarter [of 2017], 246 vehicles charged at ten charging stations for a total of about 2.7 vehicle charges per day.²³ That means there were approximately 75 minutes of vehicle charges over ten charging stations; 70 percent of the charging capacity went unused all day.

In the third quarter [of 2017], 240 vehicles charged

¹⁶ Chevrolet. <http://www.chevrolet.com/electric/bolt-ev-electric-car#range>
Range: Wilmington to Fenwick.

¹⁷ U.S. Census QuickFacts. <https://www.census.gov/quickfacts/DE>

¹⁸ <https://www.afdc.energy.gov/stations/#/analyze?region=DE&fuel=ELEC>

¹⁹ DNREC's Kathy Harris response to DPA Data Request. Attachment A.

²⁰ DNREC's Kathy Harris response to DPA Data Request. Attachment B.

²¹ DNREC's Kathy Harris response to DPA Data Request. Attachment B.

²² DNREC's Kathy Harris response to DPA Data Request. Attachment B.

²³ DNREC's Kathy Harris response to DPA Data Request. Attachment B.

[at] over ten charging stations for a total of about 2.6 vehicle charges per day.²⁴ That means there were approximately 60 minutes of vehicle charges [at] over ten charging stations; 70 percent of the charging capacity went unused all day.

In the fourth quarter [of 2017], 153 vehicles charged [at] over ten charging stations for a total of about 1.7 vehicle charges per day.²⁵ That means there were approximately 40 minutes of vehicle charges over ten charging stations; 80 percent of the charging capacity went unused all day.

This data clearly shows that many of the existing stations are not fully utilized. This excess capacity of existing charging stations strongly suggests that Delmarva does not need to own or maintain charging stations, nor should ratepayers need to subsidize such resources at the expense of the competitive market process. If anything, this should be a statewide initiative, rather than one for which only a subset of Delawareans pay." (Id. at pp.13-14.)

According to the Public Advocate,..."[p]rivate companies such as ChargePoint see a market in Delaware and are investing in charging equipment. As we know, competitive markets drive down price and private businesses understand the need for specific analysis [as to] where charging stations should be placed. We should let the competitive market work without Delmarva, which will recover all of its costs and a healthy return from ratepayers and earn a return potentially destroying (or at least slowing down) the competitive market." (Id. at p.15.)

60. The Public Advocate argues that electric vehicle ownership is already being encouraged through a federal tax credit and a State of Delaware rebate. According to the Public Advocate's Consultant Glenn A. Watkins:

"[t]he Federal government offers a Federal Income Tax credit of \$7,500 for all-electric vehicles. In addition, and as noted earlier, the State of Delaware offers a cash rebate of \$3,500 for the purchase of all-electric vehicles along with a 50% rebate (up to \$500) for the purchase of a Level 2 residential electric vehicle charger. In total, a Delawarean purchasing a new all-electric vehicle will receive an upfront incentive of \$11,500 for the purchase of a new

²⁴ DNREC's Kathy Harris response to DPA Data Request. Attachment B.

²⁵ DNREC's Kathy Harris' response to DPA Data Request. Attachment B.

all-electric vehicle."²⁶ (Exh. 9, p.8)

61. Furthermore, the Public Advocate notes that owners of electric vehicles will not pay gasoline taxes which help to maintain Delaware's roads and highways:

"Additionally, Delawareans pay 41.4¢ per gallon of gasoline in fuel taxes.²⁷ All-electric vehicle owners will not purchase gasoline and, therefore, will not contribute to the cost of maintaining the Delaware roads and highways they will use. Assuming the average driver books about 15,000 miles per year with the average gasoline powered vehicle obtaining 27 miles per gallon, this means that all-electric vehicle owners will avoid paying about \$230 per year in taxes used to maintain the State's road system." (Id.)

62. The Public Advocate observed that Delmarva already has a time-of-use rate from which PIV owners would benefit:

"a typical all-electric vehicle owner with a Level 2 charger and who commutes five days per week will require about 17.25 kWh per day and about 4,312 kWh per year.²⁸ [The Public Advocate states that its] 17.25 kWh per day estimate is conservative compared to the Company's own estimated 18.40 kWh per charge per day, provided in response to DPA-9. Under the current Rate R (non-time of use rate), the incremental cost of 4,312 kWh (distribution plus supply) is \$467.56, while the incremental off-peak usage under the currently approved R-TOU-ND rate is \$203.49. This equates to an annual savings of \$264.07, or \$22.00 per month, for an electric vehicle owner switching from the current Rate R to Rate R-TOU-ND.

Furthermore, most residential electric vehicle owners are able to (and do) charge their vehicles at night (during off-peak hours). As a result, there is already a mechanism in place that provides incentives and cost reductions to electric vehicle owners for charging their vehicles at home during off-peak hours. There is no need for yet another TOU rate that will require

²⁶ "Most Level 2 residential chargers cost slightly more than \$1,000. Therefore, the charger rebate of \$500 will apply to most electric vehicle charger purchases." (Exh. 8, p.8, fn.5)

²⁷ "18.4¢ in Federal taxes and 23.0¢ in Delaware taxes. Per numerous sources, including U.S. Department of Energy, EIA." (Exh. 8, p.8, fn.6)

²⁸ [The Public Advocate has] estimated that the average amperage required during an entire charge is 15 amps at 230 volts for five hours, which equals 17.25 kWh per charge. (Exh. 9, p.11, fn. 7)

all other ratepayers to subsidize the proposed R-PIV rate." (Exh. 8, pp.11-12.)

63. Below is the DPA's comparison of the two (2) rates:

DELMARVA POWER & LIGHT COMPANY
Comparison of Current Rate R-TOU-ND and Proposed Rate R-PIV

| | R-TOU-ND ²⁹ | | R-PIV | | R-PIV Discount | |
|----------------|------------------------|------------|------------|------------|----------------|--------|
| | Summer | Winter | Summer | Winter | Summer | Winter |
| Cust. Chg. | \$18.25 | \$18.25 | \$11.82 | \$11.82 | | |
| Distribution | | | | | | |
| On-Peak | \$0.060607 | \$0.060607 | \$0.036711 | \$0.036711 | | |
| Off-Peak | \$0.007309 | \$0.007309 | \$0.036711 | \$0.036711 | | |
| Supply | | | | | | |
| On-Peak | \$0.112683 | \$0.111624 | \$0.123014 | \$0.123014 | | |
| Off-Peak | \$0.035698 | \$0.041983 | \$0.027241 | \$0.027241 | | |
| Total Energy | | | | | | |
| On-Peak | \$0.173290 | \$0.172231 | \$0.159725 | \$0.159725 | | |
| Off-Peak | \$0.043007 | \$0.049292 | \$0.063952 | \$0.063952 | | |
| Typical Bills | | | | | | |
| 80% On/20% Off | | | | | | |
| 1,000 | \$165.48 | \$165.89 | \$152.39 | \$152.39 | 7.91% | 8.14% |
| 2,000 | \$312.72 | \$313.54 | \$292.96 | \$292.96 | 6.32% | 6.56% |
| 3,000 | \$459.95 | \$461.18 | \$433.53 | \$433.53 | 5.74% | 6.00% |
| 70% On/30% Off | | | | | | |
| 1,000 | \$152.46 | \$153.60 | \$142.81 | \$142.81 | 6.32% | 7.02% |
| 2,000 | \$286.66 | \$288.95 | \$273.81 | \$273.81 | 4.48% | 5.24% |
| 3,000 | \$420.87 | \$424.30 | \$404.80 | \$404.80 | 3.82% | 4.60% |
| 60% On/40% Off | | | | | | |
| 1,000 | \$139.43 | \$141.31 | \$133.24 | \$133.24 | 4.44% | 5.71% |
| 2,000 | \$260.60 | \$264.36 | \$254.65 | \$254.65 | 2.28% | 3.67% |
| 3,000 | \$381.78 | \$387.42 | \$376.07 | \$376.07 | 1.50% | 2.93% |

(Exh. 9, Watkins, GAW-2)

²⁹ Exh. 9, Watkins, Sch. GAW-2

64. As to the proposed Program 1, the Public Advocate argues against creating a new voluntary whole-house time of use rate for electric vehicles. As discussed previously, the Company currently has Commission-approved time of use rate "designed to promote load shifting from on-peak to off-peak periods" and the additional 5-8% subsidy to electrical vehicle owners is not necessary. (Exh. 9, pp.10-11) An electric vehicle owner using this rate and charging their vehicle at night during off peak hours can save a substantial amount of money each year. (Id. at p.12.)

65. As to the proposed Program 2, where the Company would provide a \$50 credit plus \$5 per month for Fleet Carma® GPS tracking, battery charge and odometer readings, the Public Advocate argues that this is an unnecessary subsidy because: 1) a driver can observe the charge of their vehicle's battery, and 2) the GPS information will not aid DPL regarding its electric distribution system. Additionally, the DPA has privacy concerns. (Id. at p.13.)

66. As to the proposed Program 3, involving the installation of a Company-provided Level 2 charger at 50% off Delmarva's cost with a separate time of use rate for a second meter, including 50% off Delmarva's installation cost which can be financed interest free for 12 months, the Public Advocate argues the Program should be rejected because: 1) it is a subsidy; 2) even with the 50% discount, DPL's total cost of the charger and installation of \$3500 is double the cost of what a customer could purchase a charger on Amazon for and have it installed by an electrician. (Id. at p.15.) Proposed Program 4 involves "the Company subsidizing 50% of the cost for up to 10 Smart Level 2 chargers to customers who own or operate condominiums/apartment complexes [with at least 3 electric vehicle owners]." (Id. at p.16 & fn 8.) According to the Public Advocate, this

subsidized "multi-family rate," which is not a time of use rate, should be rejected in favor of the free market and not subsidizing the developers and owners of these condominiums/apartment complexes. (Id. at pp.17-18.)

68. According to the Public Advocate, another reason for rejecting this program is that the proposed SGS-ND-PIV rate, like the proposed R-PIV rate, is a subsidized rate, as shown in the table below:

| | Current SGS Rate | Proposed SGS-ND- PIV Rate | SGS-ND-PIV Discount |
|---|------------------------|------------------------------------|------------------------|
| Customer Charge | \$15.56 | \$11.82 | \$3.74 |
| Energy Charge/kWh(Summer) ³⁰ | 11.8300¢ | 10.6278¢ | 1.2022¢ |
| Energy Charge/kWh(Winter) ³¹ | 11.6763¢ | 10.9519¢ | 0.7244¢ |

(Exh. 9, Watkins, pp.17-18.)

69. The Public Advocate also disagrees with proposed Program 5 which seeks that two Level 3 "Fast Chargers," which typically require a maximum of 50 KW of power, and cost \$120,000 each, be installed on I-95, Route 1, and other major highways and other major roads.³² (Id. at pp. 18-19.) The DPA argues that: 1) the location is of little benefit to DPL's customers; and 2) this program of providing electric charging service to the public is "outside the business activities of a distribution company like DPL." (Id. at pp.19-20.) Finally, the State of Delaware "sited charging stations at the Delaware Welcome Center (on I-95) in 2014, paid for with an \$80,000 DNREC grant from [the] Regional Greenhouse Gas Initiative ("RGGI") funding." (Id. at p.9.)

70. The Public Advocate rejects proposed Program 6 as to

³⁰ Includes distribution and supply. (Exh. 9, Watkins, p.18, fn 9)

³¹ Id.

³² Exh. 12, Stewart Rebuttal, p.6.

installing Level 2 chargers in neighborhoods due to the proposal "interfering with free enterprise" and it being "outside of DPL's business activities as a distribution company." (Exh. 9, Watkins, p.21)

71. According to the Public Advocate, Delaware currently has 34 charging stations with 105 charging outlets. (Exh. 10, Slater, p.13) DNREC has two charging stations that it owns and Royal Farms provided data for its ten charging stations on line in 2017. (Id.) According to the Public Advocate, 34 charging stations and 105 charging outlets is sufficient for the amount of electric vehicles in Delaware, considering their minimal use. (Id. at pp.12-15.) Also, the Public Advocate stated that electric vehicles now have much longer ranges thereby decreasing range anxiety. (Id. at p.12.) "If anything, this should be a statewide initiative, rather than one for which a subset of Delawareans pay." (Id. at p.14.)

72. As to the proposed Program 7, which involves a proposed \$400,000 grant to school districts for electric school buses, the Public Advocate argues this program should be rejected because: 1) the State should fund electric school buses with taxes if it decides to do so, not DPL's ratepayers; 2) it is unknown which school districts would participate inside or outside of Delmarva's service territory³³ or in municipalities which can decide this issue through referendum; 3) Phase One of the Volkswagen fraud case settlement funds would provide up to \$3.226 million for school bus replacement, along with \$1.451 million for

³³ The Public Advocate maintains that..., "According to the Delaware Department of Education ("DOE"), only one school district owns all its buses. Nine other districts own some of their buses. Thus, only 53 percent of school districts would potentially qualify. Diving further, it's possible that Seaford and Capital School Districts may not qualify because both districts are outside of Delmarva's territory. If that is true, only 42 percent of school districts would qualify for a Delmarva ratepayer subsidized V2G electric bus. How would Delmarva choose which district receives a bus?" (Exh. 10, Slater, p.11)

"Electric Vehicle Supply Equipment;" 4) DPL ratepayers would be subsidizing customers of the Delmarva Electric Cooperative or municipalities; 5) by placing this \$400,000 into rate base, DPL is earning a profit off of this supposedly altruistic undertaking; and 6) financially this does not make sense because municipalities could issue bonds at 2.51% as of May 15, 2018, as opposed to DPL ratepayers paying 8.81% before-tax Cost of Capital. (Id. at pp. 10-11, Exh. 9, Watkins, p.22.)

73. According to the Public Advocate, since Delmarva Power estimates six of its seven offerings (excluding the Whole House rate) will cost \$1,292,050, the VW settlement funds for "Electric Vehicle Supply Equipment" would fund all six of these offerings, with \$159,453.45 remaining for other electric vehicle programs. (Exh. 10, Slater, p.12)

74. Finally, the Public Advocate takes issue with Delmarva Power's consumer education and outreach proposal. The proposal which contains three \$100,000 "options" includes, for example, web pages, social media, paid advertising, direct mail, advertising, "expanding education to customers on electrical vehicle basics [and] begin to help customers begin to overcome barriers to electric vehicle adoption." (Exh. 10, Slater pp. 19-20) According to the Public Advocate, as an electric distribution company, and not an electric vehicle manufacturer or dealer, this type of consumer education and outreach is not Delmarva Power's responsibility and its ratepayers should not be responsible for paying for it. (Id.) Furthermore, the cost seems extremely expensive given that the Delmarva-owned website and social media platforms which Delmarva intends to use are free, and that the collateral materials is an article in a Pepco Holding's website "The Source" which Delmarva Customers partially pay for. (Id. at p.19.)

C. Staff's Pre-Filed Direct Testimony.

75. Staff filed the pre-filed direct testimony of Public Utility Analyst Amy J. Porter. (Exh. 7) According to Ms. Porter:

"The Company is seeking approval to establish a regulatory asset to recover all costs associated with the program. Delmarva believes that all costs of the program should be funded by the customer classes that will benefit from it. Delmarva does not intend on using any of its own funding, in other words shareholder provided funding, to help with the program. All costs will be subsidized by all customers in the class as the Company believes all customers will benefit from the PIV Program. ... Staff believes that not all customers are benefiting from the program and therefore should not subsidize it through rates that affect all customers...

Staff does not oppose the program that Delmarva has described in the Application. Staff supports the Company's economic initiatives of trying to promote the PIV Program. Staff does however feel that the costs should be neutral across all of the customers of Delmarva. Staff does not believe that all customers should bear the costs associated with the electric plug in vehicles." (Id. at pp. 3-4.)

D. DNREC's Pre-Filed Direct Testimony.

76. Kathleen A. Harris, a Planner, submitted pre-filed direct testimony on behalf of DNREC's Division of Energy, Climate and Coastal Programs. (Exh. 8) According to DNREC, DPL's proposed electric vehicle program will benefit ratepayers and Delawareans through the time of use rates alleviating future grid stress, having charging stations near highways and at multi-unit dwellings, curbing air pollution and greenhouse gas emissions, aiding the general public health by creating less "smog," and properly educating Delawareans about the benefits of electric vehicles which the State of Delaware has not been able to afford and staff. (Id. at pp.5-8.) Below are some questions and answers directly from Witness Harris' pre-filed testimony:

77. Q. Why is it important for DPL to initiate these programs now?

A: Electric vehicles are projected to comprise 65% of light-duty vehicles sales by 2050 and offer environmental and health benefits to all Delawareans.

³⁴ Electric vehicles currently reduce greenhouse gases by approximately 5,750 pounds of CO2 equivalent per vehicle annually compared to a gasoline equivalent vehicle. In addition, electric vehicles emit zero tailpipe emissions, reducing ground level ozone and negative public health outcomes caused by this pollution. As more renewable energy is added to the electric grid, the production of electricity used to charge electric vehicles will become cleaner and emit fewer greenhouse gases, while also improving air quality and public health in Delaware. (Id. at p. 5.)

Since electric vehicles recharge an on-board battery by using electricity from the electric grid, a large number of vehicles charging at the same time and during peak demand hours could have a negative effect on electricity supply, availability, and price. Utilities have an opportunity to prepare for this change in electricity usage and ensure future grid stabilization by encouraging electric vehicle drivers to charge their vehicles during off-peak times. Utilities throughout the country have developed programs similar to those proposed by DPL to prepare for future trends. Since the majority of vehicle charging is done at home,³⁵ developing programs that encourage electric vehicle drivers to charge during "off-peak" hours can alleviate future stresses on the grid. It is cheaper and more efficient to prepare for an issue before it occurs, and these programs provide opportunities to develop the best model possible. If utilities wait until after electric vehicles have penetrated the market, grid stabilization and upgrade costs may be significantly higher, therefore costing ratepayers more money. (Id. at pp.5-6 & fn 2.)

78. Q: Do these proposed programs align with the state's goals to reduce greenhouse gases?

A: Yes. In 2016, Delaware's Cabinet Committee on Climate and Resiliency recommended that the state adopt a goal of 30% reduction of greenhouse gas emissions from 2008 levels by 2030. In 2017, Delaware joined the US Climate Alliance, thereby agreeing to

³⁴ Energy Policy Simulator, 2018 <https://us.energypolicy.solutions/>

³⁵ <https://www.energy.gov/eere/electricvehicles/charging-home>

reduce greenhouse gas emissions by 26% from 2005 levels by 2025 (approximately 2.5 million metric tons). According to the 2014 Delaware Greenhouse Gas Inventory, the transportation sector accounts for 28% of greenhouse gas emissions in Delaware.³⁶ The large percentage of emissions from this sector, coupled with the lack of programs to address it and emerging electric vehicle technologies, spurred the Division of Energy, Climate, and Coastal Programs to develop programs that reduce emissions in this sector. One of the primary methods to reduce greenhouse gas emissions in the transportation sector is fuel switching from internal combustion engines (diesel or gasoline) to electric engines. (Id. at pp.6-7 & fn 3.)

79. *Q: How can electric vehicles benefit all DPL ratepayers?*

A: Electric vehicles can provide additional revenue to a utility without significant costs if vehicles are charged during off-peak hours. This is because electric vehicles are able to utilize the idle capacity of the transmission and distribution systems without requiring additional grid upgrades. According to the Pacific Northwest National Laboratory,³⁷ the marginal cost of energy could decrease drastically if electric vehicles are charged during off-peak hours. Encouraging electric vehicle drivers to charge during off-peak hours can provide economic long-term benefits to utilities and decrease utility rates for all DPL ratepayers. (Id. at p.7 & fn 4.)

80. *Q: What are the health benefits of electric vehicles?*

A: Emissions from the transportation sector can cause serious health related issues. Traditional gasoline vehicles emit NOx and VOCs, which are precursors to the development of ground level ozone, the main ingredient in "smog." Ground level ozone, according to the Environmental Protection Agency, can make breathing difficult, inflame and damage the airways, aggravate respiratory diseases (including asthma and emphysema), and cause chronic obstructive pulmonary disease.³⁸ These health issues are particularly pronounced in vulnerable populations, such as children and the elderly. Particulate matter, also produced by gasoline vehicles, is responsible for up to 30,000 premature deaths each

³⁶ 2014 Delaware Greenhouse Gas Inventory Data, collected by the DNREC Division of Air Quality

³⁷ <https://www.pnnl.gov/news/release.aspx?id=204>

³⁸ <https://www.epa.gov/mobile-source-pollution/how-mobile-source-pollution-affects-your-health>

year.³⁹ Plug-in electric vehicles reduce or eliminate tailpipe emissions, thereby reducing the number of health related issues caused by ground level ozone and particulate matter. (Id. at p.7 & fns 5,6.)

81. The Clean Transportation Incentive Program

In 2015, DNREC launched the Clean Transportation Incentive Program, which consists of three programs that are directly related to electric vehicles and their supporting infrastructure:

- a) *The Clean Vehicle Rebate Program* provides rebates of up to \$3,500 to Delawareans and Delaware-based businesses for the purchase of alternative fuel vehicles, including electric vehicles. Since this launch of this program, more than 700 rebates for electric vehicles have been provided to Delawareans and Delaware businesses, helping to reduce greenhouse gas emissions in the state by over 2,000 tons of CO2 equivalent annually.
- b) *The Electric Vehicle Charging Station Rebate Program* provides rebates of up to \$5,000 for electric vehicle charging stations at residential and commercial properties and workplaces. As part of this program, DNREC launched the Workplace Charging Campaign to encourage Delaware workplaces to install electric vehicle charging stations for fleet, employee, and/or public use. A siting and design document was also developed as part of this campaign that can be used by both commercial property owners and businesses interested in installed workplace charging stations. Since the launch of the rebate program, over 200 rebates have been provided to Delawareans and Delaware-based business for electric vehicle charging stations.
- c) *The Alternative Fueling Infrastructure Grant Program* was a competitive grant program in 2015 that provided funding of up to \$500,000 for the installation of alternative fueling infrastructure, including DC Fast Charging Stations for electric vehicles. As a result of these grants, 10 additional DC Fast Charging Stations were installed south of the C&D Canal at 5 Royal Farms locations. (Id. at pp.9-10.)

³⁹ <https://www.ucsusa.org/clean-vehicles/vehicles-air-pollution-and-human-health#.Wuhz0y4bOCh>

82. The Federal Highway Administration Alternative Fuel Corridors

In 2016 and 2017, the Federal Highway Administration solicited states to nominate corridors within their jurisdiction to be designated as "Alternative Fuel Corridors." In 2016, Delaware and several other states jointly nominated a series of interstate corridors for designation. In 2017, Delaware nominated additional intrastate corridors to be designate for electric vehicle charging stations. As a result of these nominations, Delaware's component of I-95, DE SR-1, US-13, and US-113 were designated as Alternative Fuel Corridors for electric vehicle charging stations. (Id. at p.10.)

83. Volkswagen Mitigation Trust Fund

In 2017, the Volkswagen Corporation agreed to the Diesel Emission Partial Consent Decree with the US Department of Justice for installing "defeat devices" in diesel vehicles. As part of this consent decree, Delaware will receive approximately \$9 million for projects that reduce NOx emissions. The DNREC Division of Air Quality will manage the funds from this settlement. Fifteen percent of this funding (\$1.5 million) will be designated for electric vehicle charging and hydrogen fueling stations. The Division of Energy, Climate, and Coastal Programs will manage that portion of the funding. While eligible projects have not been determined yet, DNREC anticipates using these funds to install new DC Fast Charging stations in Delaware. (Id. at pp.10-11.)

84. Charging Stations at DNREC locations

In 2016, DNREC installed two public electric vehicle charging stations at State Street Commons in Dover. As a result of installing and managing these charging stations, DNREC has been able to offer low-cost charging services for employees as well as collect a modest amount of data on station usage and charging patterns. Staff also gained valuable experience with charging station installation and management.

85. DNREC's Electric Fleet Vehicles

The DNREC Division of Energy, Climate, and Coastal Programs has two electric fleet vehicles and helped the Division of Air Quality and the Delaware Department of Transportation obtain electric vehicles. DNREC is currently working with the state

Office of Management and Budget Fleet Services to deploy additional electric fleet vehicles throughout the state, and install infrastructure to support them. (Id. at p.11.)

86. Finally, according to DNREC, "[t]he reduction of greenhouse gases in the transportation sector also helps to mitigate the effects of climate change induced health related issues. Climate change can cause an increase in extreme weather events, heat waves, disease migration, and droughts, all of which have adverse effects on human health and welfare."⁴⁰ (Id. at p.8 & fn 7.)

E. SIERRA CLUB'S Pre-Filed Direct Testimony.

87. Consultant Douglas B. Jester from 5 Lakes Energy, LLC filed pre-filed direct testimony on behalf of the Sierra Club. (Exh. 6) As to the benefits of electric vehicles to ratepayers and Delawareans, the Sierra Club essentially focused on the same benefits as DNREC, although the Sierra Club provided additional support for those benefits. (Id. at pp.7-13.)

88. According to the Sierra Club, an electric utility like Delmarva Power is in a unique position to present an electric charging program and consumer education during early development of the market because the utility can bill customers for charging their electrical vehicle at home and thereby "can dilute the fixed costs of transmission and distribution and lower electricity rates for all utility customers." (Id. at pp.23-24.)

89. Regarding Program 1, the residential whole-house time of use rate, the Sierra Club states that:

"[t]his option should be fully supported as it will broadly serve to rationalize when customers use power and will both promote electric vehicle

⁴⁰https://www.niehs.nih.gov/research/programs/geh/climatechange/health_impacts/index.cfm

ownership and optimum charging patterns at no cost to other customers. However, I recommend that the offering be extended to Net Energy Metering customers as well, which I anticipate will be particularly important given the likely overlap in EV ownership and rooftop solar." (Id. at p.34.)

90. Regarding Program 2, the FleetCarma® device, the Sierra Club argues that this program will help "shape load" and does not require the customer's other electricity uses to be subject to a time of use rate. (Id. at pp.34-35.)

91. Program 3 involves Smart Level 2 EV equipment at a 50% discount along with a second meter. The Sierra Club argues that this program will allow DPL "to manage smart charging and the costs and benefits of doing so in context of a time of use rate." (Id. at p.36.)

92. Program 4 is the multi-family dwelling offering. The Sierra Club recommends dispensing with the proposed 3 vehicle requirement because, not only is it a difficult market to develop a workable solution, but "Delmarva's proposed requirement would limit the offering's ability to promote new EV deployment by limiting it to buildings at which drivers have already found workable solutions to enable EV ownership other than home ownership." (Id. at p.37.) In addition, the Sierra Club recommends providing a way for EV drivers to pay Delmarva or a third-party directly for charging services to enable pricing options beyond a flat rate charge or parking fee to incent drivers to charge at low-cost times or cycle through parking once charging is complete." (Id. at pp.37-38.)

93. Regarding Program 5, according to the Sierra Club, "Delmarva apparently plans to use 50kW DC fast charging in this offering. For a "road trip" charging session, this is inadequate. Fully charging high-range electric vehicles such as the Chevrolet Bolt or any of the Tesla models at 50 kW charging rate could take a couple of hours. For this reason, Electrify

America [established by Volkswagen in the settlement] recently announced that it will be including 350 kW and 400 kW charging equipment in its highway corridor program. Charging at these rates will reduce charging times for "road trip" charging to approximately 15 minutes, which is much more conducive to electric vehicle adoption and use than a two hour charging episode. [We] therefore recommend that Delmarva focus this offering on charging stations offering 350kW to 400 kW charging rates." (Id. at p.40.)

94. As to Program 6, Neighborhood public charging, as opposed to installing two (2) Level 2 chargers, since street parking or shared parking without spaces is involved, the Sierra Club recommends that this program be modified to use 50 kW or 150kW fast charging stations for neighborhood public charging. (Id. at pp.41-42.)

95. As to Program 7, the electric school bus program whereby Delmarva proposed \$400,000 of funding, The Sierra Club supports this offering because school busses are ideal for Vehicle to Grid applications and electric school busses "will directly reduce exposure of children to particulate matter and other pollutants." (Id. at pp. 42-43.) The Sierra Club proposes that Delaware follow California's stakeholder program which requires quarterly reporting about miles, expenses, technology, challenges, etc. It is also recommended that the Commission perform a formal review in two (2) years to evaluate all advances regarding this subject. (Id. at pp.43-45.)

F. Company's Pre-Filed Rebuttal Testimony. Testimony of Robert S. Stewart.

96. The Company's pre-filed Rebuttal testimony was filed by those representatives who filed direct testimony: a) Robert S. Stewart, Pepco Holdings, Inc.'s ("Pepco") Manager of Smart Grid and Technology; and b) Peter R. Blazunas, a Senior Rate Analyst in Pepco's Regulatory Strategy and Revenue Policy Division. (Exhs. 12 and 11, respectively.)

97. Witness Stewart addressed a number of program design issues raised by the DPA witnesses Slater and Watkins and Staff's witness Porter. (Exh. 12, p.1.)

98. As to the DPA's witness Slater's arguments, Company witness Stewart raised the following rebuttal arguments:

- a. In excess of \$1 billion of utility-owned EV equipment has been approved in the U.S., responding to the DPA's argument that some states are rejecting utility-owned EV equipment; (Id. at pp.1-2.)
- b. The PIV charging program complements the purchases incentives currently provide by the federal and state government, responding to the DPA's argument that enough incentives are already being provided; "the main reason is to help Delmarva Power better manage the coming significant shift to PIVs and resulting impact on the distribution system;" (Id. at pp.3-4.)
- c. As to the DPA's argument that the Fleet Carma[®] device "provides no incentive to change [charging behavior]," Company witness Stewart argues that the device allows the Company "to verify that the participants are charging at their residence and charging off peak [which, if both conditions are met, would allow participants to receive an off-peak credit]." (Id. at p.4; see Exh. 9, Watkins, p.16)
- d. The Company is considering I-95, Route 1, Route 301 and/or Route 13 for placement of the two (2) requested Direct Current Fast Chargers ("DCFC"), not just I-95 as implied by the DPA, with costs "primarily" to be borne by users whether from in or out of state;⁴¹ (Id. at pp. 6-7.) Delmarva seeks ownership of these units to determine "frequency of use, time of use, average dwell time, safety and reliability." (Exh. 12, p.7.) Finally, customers' private information is appropriately managed by Fleet Carma[®] while customers receive access to their own driving history which can help them improve their driving efficiency. (Id. at p.16.) "... PIV operators using the chargers, whether from Delaware or out-of-state, are paying for the capital costs of the chargers, as well as costs associated with

⁴¹ Two major Charging Standards of DC Fast Charging are: CHAdeMO: This is currently the most popular standard, used by the Nissan Leaf, Mitsubishi i-MiEV, and Kia Soul EV and CCS (Combined Charging Standard): All U.S. makers except Tesla and all German makers use this standard, including cars from BMW, Chevrolet, Ford, Mercedes-Benz, Volkswagen, and Volvo that are fitted with quick-charging ports. (Exh. 12, p.18.)

- distribution, generation, and transmission service, through their use of the chargers." (Exh. 11, p.3)
- e. Regarding the DPA's arguments as to the Company's proposal as to electric school buses, Witness Stewart argues that "Delaware's allocation of funds from the VW settlement is \$9,676,682.97." (Exh. 12, p.9.) DNREC has developed a proposed environmental mitigation plan for accepting and allocating those funds. The proposal consists of three (3) phases. The first two (2) phases are aimed at nitrogen oxide (NOx) reduction specifically, with Phase One providing one third of the funding, or \$3,225,560.99, for replacement of diesel school buses with propane buses and Phase Two providing an additional third of the funding to projects it will solicit through a competitive request for proposals (RFP) that will reduce NOx emissions from the transportation sector.

During Phase Three, DNREC will receive 15% of the settlement funds, or \$1,451,502.45, for the deployment of Electric Vehicle Supply Equipment, which will be distributed through another RFP process. The remaining \$1,774,058.54 will be allocated to eligible NOx-reducing projects based on the funding priorities delineated in the Mitigation Plan. It is important to note, however, that Phase Three's deployment of EVSE is not scheduled to be accomplished until after 2020, and it is not clear how much of this total amount would be available to support the Company's specific offerings. Relying on the EVSE that will be funded by the VW settlement therefore means doing nothing to address the State's needs in this rapidly growing area until 2020." (Id. at pp.9-10.) To the extent any DNREC funding becomes available in the future, the Company stated it would reduce the cost of its proposed programs. (Id. at p.10.)

- f. In responding to DPA's argument that the Company's proposal is anti-competitive, Delmarva argues that it is not because: a) private companies will be supplying the chargers; and b) Delmarva "is proposing to install only two Level 2 neighborhood chargers and 2 DCFC [chargers] along public corridors." (Id. at p.11.) According to Delmarva, these chargers will incentivize buyers to purchase PIVs who will then use free market chargers. (Id.)
- g. As to the DPA's argument that PIV owners "do not pay their fair share of gasoline tax which helps fund road infrastructure," Delmarva argues that this is an issue better addressed by Congress and the State of Delaware, the latter of which is considering a per mile transportation tax. (Id. at p.12.)

h. As to the DPA's argument that Delaware has not adopted any formal policy regarding electric vehicles, Witness Stewart disagrees because: a) "by Executive Order No. 18 dated February 17, 2010, all state agencies were ordered to improve air quality by reducing vehicle emissions by 25%, including making the procurement of hybrid vehicles, alternative fuel vehicles, high fuel economy or low emission vehicles a priority;" b) "Governor Carney announced in June 2017 that Delaware has joined the U.S. Climate Alliance, which is a coalition of states committed to upholding the Paris Agreement to combat climate change by reducing emissions by 26-28% percent by 2025;" c) "Governor Carney and Secretary Cohan announced the purchase of the first electric vehicles to DelDOT's fleet on February 2, 2018, which is part of an effort to evaluate the usage of PIVs as a fleet vehicle;" d) Delaware is also part of the Clean Cities Coalition Network, which is a program started by the U.S. Department of Energy and includes a coalition of 40 stakeholders to help familiarize fleet managers with the benefits of additional alternative fueled vehicles for their fleet; and d) "Delaware is one of 11 Mid-Atlantic States that is a member of the Transportation and Climate Initiative to reduce greenhouse gas emissions by minimizing our transportation system's reliance on high-carbon fuels." (Id. at pp.13-14.)

99. As to DPA's Consultant Watkins' discussion of the income of PIV owners, Delmarva argues that the number of PIV models is increasing, the price of PIVs is decreasing, and the manufacturers' rebates are substantial, with Nissan offering \$3,000 and BMW \$10,000. (Id. at pp.14-15.) Also, according to the Company, these rebates and being a border state to the Zero Emission Vehicle States of Maryland and New Jersey, could increase used PIV vehicle sales in Delaware. (Id. at p.15.) Finally, the Company maintains charging infrastructure, particularly in low income areas is needed. (Id. at p.19.)

100. As to the type and cost of the fifty Level 2 Chargers the Company proposes to purchase, Witness Stewart rebuts the DPA by testifying that the Company's proposed Level 2 charger is a true "smart charger with communication, [along with time graded] and output control capabilities."

(Id. at p.17.) The cost of these chargers was developed in the Maryland Demand Response Program for EV Charging, Formal Case No. 9261, and by verifying the cost of Company-owned fleet and workplace chargers. (Id.) Specifically, the Company's cost estimate for Offering 3 is based upon the Demand Response Pilot Program for Pepco Holdings, Inc. in Maryland. (Id. at pp. 17-18.) In Maryland, the subscription rate for the Level 2 chargers was 100%. (Id. at p.17.) Witness Stewart also cites a survey where 49% of PIV owners prefer Level 2 chargers as opposed to Level 1 chargers due to substantially better charging speed. (Id. at p.20.)

101. Responding to Staff witness Porter, Company witness Stewart testified that, while DPL "did not expect significant transmission system or bulk electric substation upgrades [due to PIVs]," the Company did "expect to see the need to address projected load at the circuit level, most likely in the form of distribution transformer upgrades." (Id. at p.23.)

102. **Rebuttal Testimony of Peter R. Blazunas.** Company Witness Blazunas addressed cost recovery and rate design issues raised by the DPA witnesses Slater and Watkins and Staff's witness Porter. (Exh. 11, p.1.)

103. As to the DPA's argument that PIV owners are being subsidized by the proposed off-peak rate, the Company argues that: a) the PIV owner must charge during the off-peak time to incur the benefit; b) all customers, whether PIV owners or not, may benefit from increased charging of electric vehicles; and c) "any shortfall in the revenues received by the Company for purposes of recovering the cost to serve the proposed whole house time-of-use rate's SOS load will be recovered solely from that Service Classification via the Company's Procurement Cost Adjustment ("PCA"). As stated in the Company's Electric

"... the Company will determine a Procurement Cost Adjustment("PCA") which will reflect the difference between the actual cost of serving customers in each fixed price SOS customer group and the amount billed to fixed price SOS customers for the same time period, plus interest at a rate equal to the Company's overall return. The PC is a \$ per kilowatt-hour rate applied to the Customer's billed kilowatt-hours. (Id. at pp.2-3.) As to the Company's voluntary residential time-of-use rate and its proposed PIV rates and why the different rates are needed, Witness Blazunas testified that, "while the rates all strive to incentivize off-peak electric consumption, the rates are not directly comparable." (Id. at p.4.) The R-PIV and PIV rates serving only an at-home charger have narrower on-peak periods than the voluntary on-peak residential rate serving the entire house. (Id. at p.5.) The PIV rates do not require the customer to manage the electricity in their entire home as the residential time-of-use rate does. (Id.)

104. As to Staff Witness Porter questioning whether the Company will earn additional revenues from the proposed program, Witness Blazunas testified that "to the extent the Program promotes the electrification of the transportation sector in Delaware and thereby helps increase overall electricity consumption while utilizing existing system capacity, it will have the effect of spreading the fixed costs of the system over an increasing number of kilowatt hours, thereby diluting the costs of the system for all ratepayers. Further, additional load from PIV charging during off-peak times (when wholesale power prices are lower) will have the effect of decreasing the average wholesale unit price." (Id. at p.6.)

105. Finally, in response to Staff Witness Porter, Witness Blazunas testified that:

"[i]t is not the Company's proposal to fund the PIV program via shareholder funds or through rates charged to participants for several reasons. First, participants are already expected to make contributions in various forms to the costs of the Program. Second, PIV charging rates set such that that they fully recover the costs of the Program may disincentive participation in the Program. This would also hinder Delmarva Power's efforts to obtain through the Program learnings about the effects of transportation electrification. Third, the Company's proposed cost recovery mechanism reflects the fact that all ratepayers, and society in general, will benefit as a result of the electrification of the Delaware transportation sector which the Company, through the PIV Program, is attempting to encourage." (Id.)

IV. EVIDENTIARY HEARING

106. On February 28, 2019, I conducted the duly-noticed evidentiary hearing at the Commission's Office in Dover. Four (4) witnesses testified at the evidentiary hearing in favor of the Commission approving the proposed Settlement Agreement, the first three witnesses testifying that the proposed Settlement Agreement is in the public interest: 1) Robert S. Stewart, Pepco Holding, Inc.'s Manager of Smart Grid and Technology, testifying on Delmarva's behalf; 2) Andrew C. Slater, Delaware's Public Advocate; 3) Connie McDowell, Commission Staff's Senior Regulatory Policy Administrator; and 4) David T. Stevenson, the Policy Director of the Caesar Rodney Institute. The proposed Settlement Agreement is attached hereto as Exhibit "1."

V. FINDINGS AND RECOMMENDATIONS

107. Pursuant to the Commission's instructions, I hereby submit for consideration these proposed Findings and Recommendations.

108. The Commission has jurisdiction in this Docket pursuant to 26 Del. C. §201(a).

109. The Settling Parties, Delmarva, Staff, and the Public

Advocate, each representing diverse interests, testified that adopting the Settlement Agreement is in the public interest. The three additional parties, DNREC, the Caesar Rodney Institute, and the Sierra Club, did not object to the adoption of the Settlement. The Settlement Agreement was reached after significant discovery and negotiations between the Settling Parties over the course of this fifteen (15) month Docket. The Settling Parties' hearing testimony and pre-filed testimony in support of the Settlement is persuasive. For the reasons which follow, I recommend that the Commission approve the Settlement as in the public interest.

110. 26 Del. C. §307(a) places the Burden of Proof upon Delmarva to demonstrate that the proposed rates are just and reasonable. Paragraph 5 of the Settlement Agreement provides that the subject costs shall be recorded in a Regulatory Asset and that the Company shall seek recovery of the Regulatory Asset in its next base rate case. "The reasonableness and the amount of the Regulatory Asset will be subject to review and challenge by any other party."

111. 26 Del. C. §512(a) provides that "[i]nsofar as practicable, the Commission shall encourage the resolution of matters brought before it through the use of stipulations and settlements." 26 Del. C. §512(c) provides that the Commission may approve a settlement if it is in the public interest.

112. According to Company Witness Stewart's testimony regarding Paragraph 1 of the Settlement Agreement, "Delmarva is authorized to institute a new mandatory service classification for residential customers, which allows for a second meter to be used solely for measuring residential electric vehicle charging. That new service classification would include a time-of-use rate that goes along with it to encourage off-peak charging." (Tr.-237) The idea is for the Company to plan for and thus

minimize the impacts of electric vehicles on its infrastructure. (Tr.-236) Participants may elect a 100% renewable energy "Green Rider" option at an increased charge which, if selected, renewable energy credits offset the EV charger's energy use. (Tr.-237-238.)

113. Company Witness Stewart also testified regarding Paragraph 2 of the Settlement Agreement involving neighborhood chargers. The parties have agreed that Delmarva shall own and operate two Level II chargers to be installed in neighborhoods in an attempt to address EV charger underserved areas, evaluate installation challenges and customer usage, and/or aid Delmarva in siting commercial charger installations, and working with local governments. (Tr-239) Delmarva will provide 100% renewable credits to these two Level II neighborhood chargers. (Id.)

114. Paragraph 3 of the Settlement Agreement involves two highway chargers which Delmarva will own and operate, called "Direct Current Fast Chargers" or "DC Chargers." (Tr.-240-242) These chargers can charge an electric vehicle as quickly as twenty minutes. (Tr.-240) According to Witness Stewart, the Company wants to monitor the use of these DC Chargers to gauge the EV market and to see if any load impacts occur. (Tr.-241)

115. The Public Advocate, Mr. Slater, testified that the Settlement Agreement was in the public interest because it "strikes a balance" among many factors. (Tr.-251) He also noted that the Settlement "will provide opportunities to the ratepayers we represent through off peak charging schedules, along with four additional chargers." (Tr.-252) Also, Staff's Senior Regulatory Policy Administrator, Ms. McDowell, testified that the Settlement Agreement was in the public interest because "the services could provide incentives to purchase electric cars, which could have a positive impact on the environment." (Tr.-255)

116. Mr. Stewart described the Working Group as including Delmarva, Staff and the DPA as described in Paragraph 7 of the Settlement Agreement, "and it could involve others such as the Department of Transportation [and] DNREC, as appropriate." (Tr.-242) Delmarva anticipates meeting quarterly and sharing information regarding the EV market, plug-in vehicle issues, infrastructure, emissions, and emerging issues. (Tr.-242-243) Caesar Rodney Institute ("CRI") testified that, the Working Group Meeting should be open to the public, along with the non-objecting intervening parties, CRI, DNREC, and the Sierra Club being permitted to attend. (Tr.-258)

117. As to the Regulatory Asset, in addition to being challengeable by any party in the next base rate case, Paragraph 5 of the Settlement Agreement further provides that: "Delmarva is entitled to earn a return on the amount of the Regulatory Asset equivalent to the Company's authorized rate of return approved by the Commission in its next base rate case; however, if the amortization of the Regulatory Asset approved by the Commission in the next base rate case is less than 18 months, Delmarva is only entitled to earn a return on the amount of the Regulatory Asset equivalent to the Company's authorized cost of debt approved by the Commission in its next base rate case. The amount of the approved Regulatory Asset shall be recovered through an EV rider, which rider shall be removed from the Company's tariff when the entire approved amount of expenses deferred in the Regulatory Asset has been recovered. The Company shall notify the Commission Staff and the DPA when the Regulatory Asset has been fully recovered and the EV rider is removed."

118. The fact that the three Settling Parties executing the

Settlement Agreement represent diverse interests is persuasive. Delmarva's interest focuses upon achieving rates which allow it to recover its costs of providing electric vehicle charging service and an opportunity to earn a fair rate of return if its Program is approved by the Commission. Staff seeks to balance the utility's and all ratepayers' interests. 29 Del. C. §8716(d)(2) charges the Public Advocate with advocating the lowest reasonable rates for primarily residential and small commercial consumers consistent with maintaining adequate utility service and an equitable distribution of rates among all of the utility's customer classes. Finally the remaining three parties, DNREC, Sierra Club, and the Caesar Rodney Institute, did not object to the Settlement.

119. There is substantial evidence in the record to support my recommendation that the Settlement Agreement be approved.⁴² (29 Del. C. §10142(d)) I find that the Commission, in all likelihood, would not have decided every contested issue in favor of any one of the Settling Parties. Rather, the Commission would have more likely balanced each party's position against certain regulatory principles and reached some compromise between the various positions taken by the parties.

⁴² "Substantial evidence is such relevant evidence as a reasonable mind might accept as adequate to support a conclusion. It must be more than a scintilla, but may be less than a preponderance of the evidence." Olney v. Cooch, 425 A.2d 610, 614 (DE. 1981); Price v. State of Delaware Board of Trustees, 2010 WL 1223792 (Del. Super. Mar. 22, 2010) (unpublished opinion).

120. After having reviewed the record, I recommend that the Commission adopt and approve the proposed Settlement Agreement as being in the public interest according to 26 Del. C. §512(c). I attach a proposed Commission Order as Exhibit "2."

Respectfully submitted,



Mark Lawrence
Senior Hearing Examiner

EXHIBIT "1"

BEFORE THE PUBLIC SERVICE COMMISSION
OF mE STATE OF DELAWARE

IN THE MATTER OF THE APPLICATION)
OF DELMARVA POWER & LIGHT)
COMPANY FOR APPROVAL OF A) PSC Docket No. 17-1094
PROGRAM FOR PLUG IN VEHICLE)
CHARGING)
(Filed October 19, 2017))

PROPOSED SETTLEMENT

This__ day of January 2019, Delmarva Power & Light Company ("Delmarva" or the "Company"), the Division of the Public Advocate ("DPA"), and the Delaware Public Service Commission Staff ("Staff"), all of whom together are the "Settling Parties," each individually a "Settling Party," hereby propose a settlement of all issues that were raised in the above-captioned proceedings as follows (the "Settlement").

I. INTRODUCTION AND PROCEDURAL BACKGROUND

On October 19, 2017, Delmarva filed an application with the Delaware Public Service Commission (the "Commission") pursuant to 26 *Del. C.* § 201 seeking approval of its Application for the Approval of a Voluntary Program for Plug-In Vehicle ("PIV") Charging (the "Application").

By PSC Order No. 9150, the Commission required notice of Delmarva's Application through newspaper publication, established a deadline for interventions, and assigned the matter to Hearing Examiner R. Campbell Hay for evidentiary hearings and further proceedings. DPA intervened in this matter. Staff also participated in the case. Hearing Examiner Hay granted admission to Delaware Department of Natural Resources and Environmental Control ("DNREC"), Sierra Club, and Caesar Rodney Institute ("CRI")

as intervenors in this matter.

Pursuant to Hearing Examiner Hay's directive, notice of public comment sessions to be held on January 16, 2018 in New Castle, Delaware, on January 17, 2018 in Dover, Delaware, and on January 18, 2018 in Millsboro, Delaware was published in the *News Journal*, the *Delaware State News*, and the *Cape Gazette*. Notice of these public comment sessions was also reflected on the procedural schedule published on Delafile. The public comment sessions were held as published.

On February 9, 2018, Delmarva filed an amended version of the Application (the "Amended Application"), which was accompanied by the pre-filed direct testimony of two witnesses.

Following the resignation of Hearing Examiner Hay from his position with the Commission, by PSC Order No. 9183, the Commission designated Mark Lawrence as Hearing Examiner to continue the assigned responsibilities in this docket, as may be necessary, to have a full and complete record concerning the justness and reasonableness of the proposed program.

Pursuant to the procedural schedule, the Settling Parties engaged in substantial discovery. On May 18, 2018, Staff and DPA both submitted direct testimony. On June 22, 2018, Delmarva requested an extension of the procedural schedule to allow for the production of an expert report on rebuttal and for discovery thereon. On July 3, 2018, the Hearing Examiner granted Delmarva's request, which the Commission upheld in PSC Order No. 9270. On August 22, 2018, Hearing Examiner Lawrence entered a revised procedural schedule that had been agreed upon by the parties. On September 7, 2018, Delmarva filed rebuttal testimony. On October 1, 2018, Staff, DPA, and CRI submitted

data requests regarding Delmarva's rebuttal testimony, to which Delmarva provided responses on October 22, 2018.

It is acknowledged that the Settling Parties hold differing views as to the proper resolution of many of the underlying issues in this proceeding and are preserving their rights to raise those issues in future proceedings on a prospective basis only, except as provided below. This Settlement reflects compromises made by the Settling Parties in an effort to resolve this proceeding.

II. SETTLEMENT PROVISIONS

IT IS HEREBY STIPULATED AND AGREED by the Settling Parties that they will submit to the Commission for its approval the following terms and conditions for resolution of this proceeding:

A. Settlement Terms

1. Until real-time pricing is allowed by state law, Delmarva is authorized to institute a new mandatory service classification applicable to second meters used solely to meter residential PIV charging usage. Participants in this new mandatory service classification will be solely responsible for any and all costs for and associated with the purchase and installation of the second meter. The new service classification will include a time-of-use Standard Offer Service ("SOS") rate designed to encourage nighttime charging.

2. Participants in the new mandatory service classification described in Paragraph above will have the option of receiving electricity consisting of 100% renewable energy in the form of a volumetric "add-on," PIY-Green. Based on current procurement costs, the add-on would increase the rate by \$0.00720 per kWh. The add-on will

allow customers to have their energy supplied from 100% green energy and to claim zero tailpipe emissions when charging an all-electric vehicle.

3. Delmarva is authorized to install two Smart Level II chargers in neighborhoods within Delmarva's Delaware service territory to be determined by Delmarva, Staff, DPA, and DelDOT, and to institute a new service classification for the use of such chargers. The equipment will be owned and maintained by Delmarva and will provide electricity through 100% renewable energy sources. Any money received by Delmarva from use of the charging stations described in this paragraph will be an income line item for accounting purposes going forward.

4. Delmarva is authorized to install two Direct Current Fast Chargers along main transportation corridor sites in Delmarva's Delaware service territory in locations to be determined by Delmarva, Staff, DPA, and DelDOT, and to institute a new service classification for the use of such chargers. The equipment will be owned and maintained by Delmarva and will provide electricity through 100% renewable energy sources. Any money received by Delmarva from use of the charging stations described in this paragraph will be an income line item for accounting purposes going forward.

5. Delmarva can record the costs incurred as a result of Paragraphs 1 through 4 above as a regulatory asset. The Company will seek recovery of the regulatory asset in its next base rate case; the reasonableness and amount of the regulatory asset will be subject to review and challenge by any other party. Delmarva is entitled to earn a return on the amount of the regulatory asset equivalent to the Company's authorized rate of return approved by the Commission in its next base rate case; however, if the amortization of the regulatory asset approved by the Commission in the next base rate case is less than eighteen

months, Delmarva is only entitled to earn a return on the amount of the regulatory asset equivalent to the Company's authorized cost of debt approved by the Commission in its next base rate case. The amount of the approved regulatory asset shall be recovered through an EV rider, which rider shall be removed from the Company's tariff when the entire approved amount of expenses deferred in the regulatory asset has been recovered. The Company shall notify the Commission Staff and the DPA when the regulatory asset has been fully recovered and the EV rider is removed. Delmarva will provide an accounting of the administrative costs incurred in implementing Paragraphs 1 through 4 above to Staff and DPA.

6. The Settling Parties specifically agree that the Benefit Cost Analysis for Electric Vehicle Adoption in the Delaware DPL Territory, prepared by Gabel Associates, Inc., any discovery and filings related thereto, and any Commission Orders or ruling thereon, form no basis, whether express or implied, for the resolution of this proceeding, this Settlement, and any determination by this Commission or Hearing Examiner approving this Settlement.

7. A working group will be established consisting of representatives from Delmarva, Staff, and DPA (the "Working Group"), with representatives of other state agencies such as De!DOT and DNREC participating where appropriate. This Working Group will meet quarterly to evaluate PIV issues, market conditions, and new offerings going forward. Delmarva will provide the Working Group with usage data resulting from the initiatives described in Paragraphs 3 and 4 above. The scope of data to be provided and the frequency with which Delmarva will provide such data will be determined by Delmarva, Staff, and DPA through the Working Group process.

B. Miscellaneous Provisions

8. This Settlement shall be subject to the approval of the Commission. The provisions of this Settlement are not severable. The Settling Parties will work expeditiously and in good faith to achieve Commission approval, pursuant to 26 *Del. C.* § 512. In the event this Settlement is not approved in its entirety by the Commission, then this Settlement shall be deemed an offer of compromise pursuant to Uniform Rule of Evidence 408 and no Settling Party's approval of or adoption of this Settlement shall prohibit or prejudice such Settling Party from taking any position before the Hearing Examiner and/or the Commission concerning the pending Docket. The Settling Parties further agree that this Settlement is expressly conditioned upon Commission approval of this Settlement without the need for a fully litigated evidentiary hearing and that only if this Settlement is rejected will a fully litigated evidentiary hearing on the merits be subsequently held.

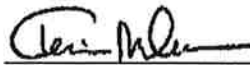
9. This Settlement is the product of extensive negotiations and reflects a mutual balancing of various issues and positions. This Settlement represents a compromise for the purposes of settlement and shall not be regarded as a precedent with respect to cost recovery or any other principle in any future case. No Settling Party necessarily agrees or disagrees with the treatment of any particular item, any procedure followed, or the resolution of any particular issue in agreeing to this Settlement, other than as specified herein.

10. To the extent opinions or views were expressed or issues were raised at any point in these proceedings, whether as part of a document filed or otherwise, that are not specifically addressed in this Settlement, no findings, recommendations, or positions with

respect to such opinions, views, or issues should be implied or inferred.

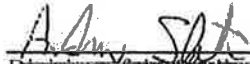
11. This Agreement may be executed in counterparts.

IN WITNESS WHEREOF, intending to bind themselves and their successors and assigns, the undersigned Settling Parties have caused this Settlement to be signed by their duly-authorized representatives.



Delmarva Power & Light Company

Date: 11/21/11



Division of the Public Advocate

Date: 1/1/11



Delaware Public Service Commission Staff

Date: 1/25/19

EXHIBIT "2"

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF DELAWARE**

IN THE MATTER OF THE APPLICATION OF) PSC DOCKET NO. 17-1094
DELMARVA POWER & LIGHT COMPANY FOR)
APPROVAL OF A PROGRAM FOR PLUG IN)
VEHICLE CHARGING)
(Filed October 19, 2017))

AND NOW, this xx day of -----, 2019;

ORDER NO. 9357

WHEREAS, the Delaware Public Service Commission (the "Commission") has considered the Findings and Recommendations of the Hearing Examiner, dated April 11, 2019 which is attached hereto as "Attachment A", issued in the above captioned Docket, which was submitted after a duly-noticed public evidentiary hearing; and

WHEREAS, Delmarva Power & Light Company ("Delmarva Power") Application was filed on October 19, 2017 and the Amended Application was filed on February 9, 2018; and

WHEREAS, the Commission Staff ("Staff"), the Division of the Public Advocate ("DPA"), the Delaware Department of Natural Resources and Environmental Control ("DNREC"), the Sierra Club, and the Caesar Rodney Institute (collectively, "the parties") participated in or intervened in the proceedings; and

WHEREAS, an evidentiary hearing was held on February 28, 2019 and live testimony has presented by Delmarva Power the DPA and Staff; and

NOW, THEREFORE, IT IS HEREBY ORDERED BY THE AFFIRMATIVE

VOTE OF NOT FEWER THAN THREE COMMISSIONERS:

1. That the Commission hereby adopts the April 15, 2019 Findings and Recommendations of the Hearing Examiner, attached hereto as "Attachment A". We also adopt and approve the parties' Settlement Agreement attached hereto as "Attachment B" and find that it is in the public interest according to 26 Del. C. §512(c).

2. The Commission establishes a Regulatory Asset regarding Delmarva Power's Plug in Vehicle Charging Program and the costs described in Paragraphs 1 through 4 of the Settlement Agreement.

3. The Regulatory Asset shall be recorded as of the date of this Order. However, as described in Paragraph 5 of the Settlement Agreement, in the Company's next electric base rate case, the Regulatory Asset shall be subject to challenge by any other party. The parties are permitted to contest the reasonableness and the amount of the Regulatory Asset.

4. The Commission also approves the parties' agreement as to the return the Company may earn on the amount of the Regulatory Asset and any recovery, as described in Paragraph 5 of the Settlement Agreement.

5. That this Docket shall be closed.

6. That the Commission reserves the jurisdiction and the authority to enter such further Orders as may be deemed necessary or proper.

BY ORDER OF THE COMMISSION:

Chairman

Commissioner

Commissioner

Commissioner

Commissioner

ATTEST:

Secretary